1999

Intervention Implementation and Intervention Outcomes for Teenage Mothers in School -Based Treatment for Social and Academic Problems.

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INTERVENTION IMPLEMENTATION AND INTERVENTION OUTCOMES FOR TEENAGE MOTHERS IN SCHOOL-BASED TREATMENT FOR SOCIAL AND ACADEMIC PROBLEMS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by
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August 1999

DEDICATION

This paper is dedicated to the memory of my late Father, Wilbur Hurley Edenfield, who died of cancer on November 1, 1997, and whose safe and comforting presence I still miss.

ACKNOWLEDGMENTS

I wish to acknowledge, with gratitude, the mentorhsip and guidance of Dr. Joseph C. Witt, my major professor, without whose direction this study would have been impossible. His timely and erudite input into all phases of this project was invaluable to me. For their reading of this document and their helpful comments and suggestions, I wish to thank my committee composed of Professors Mary Lou Kelley, John Northup, George Noell, and Charles Teddlie.

I am especially grateful to my husband, Dr. Harold R. Penton, II and to my son, Harold R. Penton, III for the many ways in which they have enthusiastically backed me and for the assistance they have given me throughout years of study. And, to my Mother, Ruth Neel Edenfield, from whom I have learned so much, I give my utmost thanks for her love, support, and encouragement in all things throughout my entire life.

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ABSTRACT

The effects of a strong treatment package, comprised of 2 types of performance feedback plus incentives, on the social behavior and academic progress of 9 minority teenage mothers attending an inner-city high school, was investigated. Treatment integrity of their teachers and parents was also evaluated. Research shows that academic deficits and conduct problems are strong correlates of early pregnancy. Many students experience academic failure and related disciplinary problems because no one monitors their behavior. In this study, a comprehensive treatment was developed to be used across settings (home, school and a school-based health clinic) and across treatment agents (parent, teacher, a therapist working within the school-based health clinic, and the teenage mother herself) to increase the monitoring, and self-management skills of these young mothers. Three triads of 3 participants each (teen mother, parent and teacher) were trained on specific treatment steps to be completed daily. Permanent products generated by the intervention were used to verify whether or not each treatment step was actually performed. From these outcome measures, a daily treatment integrity score was calculated for parents and teachers, while treatment compliance and academic performance were measured for teenage mothers. The results showed that all teen mothers improved their treatment compliance and their academic averages. Disciplinary referrals and absences from class were measured pre- and post-treatment for each teenage mother and it was determined that the rates of accumulation for both of these were reduced for most of the teen mothers. Treatment integrity improved for all parents of the teen mothers, and teachers maintained high levels of intervention usage throughout the study. This study contributes to the literature in that it provides a useful methodology for determining where treatment implementation is breaking down, whether with the teacher, the parent or with the student. It also provides a telephone parent-training format, via a daily telephone interview between the teenage mother and her parent/guardian, which

may be used for the purpose of training the important parenting behavior of talking with a child in order to hold the child accountable for daily school progress and behavior.

INTRODUCTION

This paper is based on the supposition that teenage mothers have a number of risk factors that make school problems both likely to occur, and difficult to treat. The purpose of this study was to improve the school achievement and daily school attendance of at-risk high school student teen mothers by introducing a strong intervention involving multiple components. This intervention was designed to enhance both monitoring and feedback to the student regarding her academic performance. More specifically, the intervention included a classroom component, a school-based health clinic component, and a home component. To enhance academic performance, the intervention involved multiple treatment agents including the teacher, the parent, the teenage mother herself and a therapist in the health clinic. Specifically, the teachers and parents of the teenage mothers were trained in implementing a School-Home Note System (Kelley, 1990) which focused on the improvement of school academic performance, and truancy reduction (class attendance). The teenage mother met daily with the therapist from the Health Clinic who monitored each student's treatment compliance and reviewed daily progress with each student.

Teen mothers are an important but difficult group to work with because they have both the problems of adolescence as well as the problems of adulthood. The literature on teenage pregnancy predicts both poor immediate and long-term outcomes for teenage mothers. The 1990 report of the California Task Force concluded that:

> Teenage mothers are more likely than those who are married to live under the stress of poverty, to use nonfamilial child care, and to suffer from a lack of social and psychological support; they typically drop out of school and require some public assistance support (p.49).

Becoming pregnant, then, typically has a disruptive effect on the education of the teenage mother, which in turn seriously impacts her subsequent vocational and income opportunities. Adolescent childbearers are less likely to complete high school, attend college, find stable employment, marry or be self-supporting than later childbearers

(Chilman, 1980; Furstenberg, 1976; Furstenberg, Lincoln, & Menken, 1981; Furstenberg, Brooks-Gunn, & Chase-Lansdale, 1989; Lewis, 1993; Moore & Burt, 1982; Richtsmeier, 1994).

Very strong links exist between teenage motherhood, antisocial behavior patterns and school academic failure (Babikian & Goldman, 1971; Curtis, 1974; Lewis, 1987; Patterson, 1983; Patterson, Reid & Dishion, 1992; Stewart, 1981; Walker, Colvin & Ramsey, 1995). Further, the children of teenage mothers have lower school performance than children of older mothers (Brooks-Gunn & Furstenberg, 1986; Rauch-Elnekave, 1991; Simkins, 1984). Like their teenage parent, they too are likely to spend their lives in poverty, in one-parent homes, to repeat the parental pattern of early pregnancy, and to thereby perpetuate the entire cycle, including familial poverty due to educational failure, in their own generation.

The effects of early pregnancy on the lives of teenage mothers, their children and society have been extensively documented. Unfortunately, none of these effects are positive. The problems related to teenage parenting constitute a pressing social concern with far-reaching consequences. The overall goal of this study, therefore, was to provide the support necessary to improve the academic success of at-risk, minority, teenage mothers in order to assist these young mothers to remain in school to graduate with their diploma so that they may ultimately become independent, self-sustaining adults with marketable job skills. This should help to improve future outcomes for their children, as well.

REVIEW OF THE LITERATURE

Pregnancy Risk Factors

The causes of adolescent pregnancy are varied and include numerous social, biological, psychological and academic variables. The interaction of these variables from birth to adolescence sets the stage for most teen pregnancies (DeRidder, 1993). Numerous attempts to identify traits and conditions leading to teenage motherhood have produced a consensus of several factors which consistently relate to a high teen pregnancy rate.

Social and biological factors that have been identified include low socioeconomic status, race, family instability, having a parent who was herself a teenage mother, peer expectations/influences (McKenry, et al.,1979), low levels of educational achievement, limited communication between parent/s and child, isolation or parental inattention (Vance, 1985), "emotional deprivation" during childhood (Horwitz, Klerman, Kuo & Jekel, 1991), and a lack of supervision and monitoring of the child's activities (DeRidder, 1993; Grimes, 1987).

There are several psychological factors thought to trigger attitudes and behaviors that lead to teenage pregnancy. These include feelings of fatalism, powerlessness and trusting to luck, a favorable view toward risk-taking behavior, low educational and vocational life-goals, and low levels of interpersonal communication skills.

Academic variables also contribute to the risk of teenage pregnancy. Robbins, Kaplan and Martin (1985) found that school stress is a strong predictor of adolescent premarital pregnancy. Selden (1990), found that "teens with poor basic skills are five times as likely to become mothers before age 16 as those with average basic skills" (p.4). Bempechat, Stauber, and Way (1989) found that both males and females 16 years or older who have average or better basic skills, are two and a half or more times less likely to become mothers and fathers than their peers who have poor basic skills. In another study, girls who became pregnant during adolescence had behavioral problems and were already

identifiable as academic underachievers by the age of 11 years (Wilson, 1980). In her study of reading and math skills of pregnant adolescents, Rauch-Elnekave (1991) found that many of the teenage mothers in her sample of subjects had basic skills deficits that had actually been identified as early as 3rd grade, but had unfortunately never been addressed through remediation.

Several researchers have further characterized a large percentage of teenage mothers as having behavior disorders of adolescence (unsocialized-aggressive reaction type) (Babikian and Goldman, 1971; Stewart, 1981), and as being hostile and defiant of authority figures (Curtis, 1974). In their longitudinal investigation, Kovacs, Krol and Voti (1994) found early onset of conduct disorders to be highly correlated with teenage pregnancy. Of the girls in their study who had childhood and/or adolescent onset conduct disorders, eventually 54.8% became pregnant teenagers as compared to 12% of the girls who did not have conduct disorder. These findings converge with results from large population studies which imply that behavioral dysregulation is an important antecedent risk factor for teenage pregnancy (Abrahamse, et al., 1988; Elster & Ketterlingus, 1990; Ensminger, 1990; Yamaguchi & Kandel, 1987). Thus, the association between externalizing behavior problems and early pregnancy consistently has been documented and explained as an underlying dimension of dysregulation of conduct (Donovan & Jessor, 1985). Figure 1 depicts the cumulative probability of first teenage pregnancy by presence or absence of conduct disorder, (Kovacs et al., 1994).

The social, psychological, and academic variables listed above, characterize student teenage mothers specifically, and at-risk student populations in general. Fortunately, intervention programs are beginning to proliferate since school personnel are starting to recognize the link between low basic skills, poverty, conduct problems, teenage pregnancy, and school dropouts (American Public Welfare Association, 1986; Dryfoos, 1988). Amaro, Zuckerman, and Cabral (1989) found that, sexual activity, substance

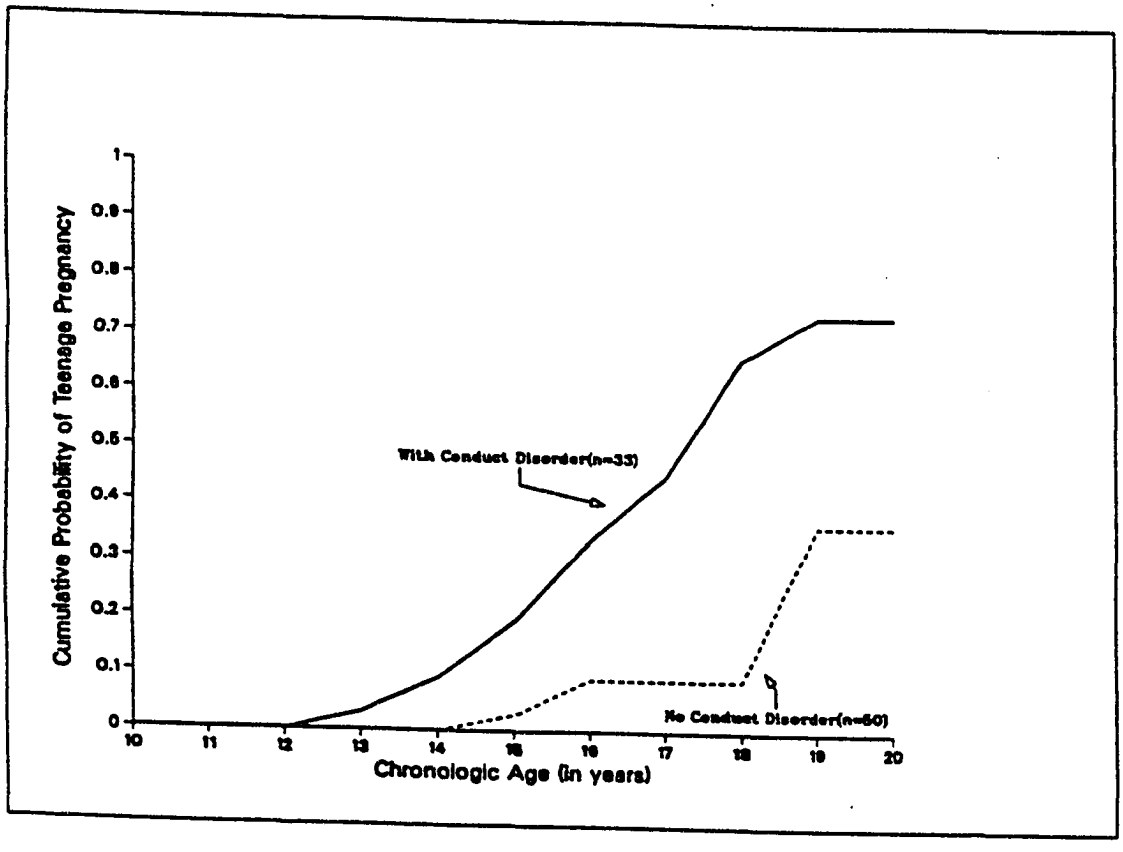

Figure 1: Probability of teen pregnancy related to conduct disorder. Kovacs, M., Krol, R., & Voti, L. (1994). Early onset psychopathology and the risk for teenage pregnancy among clinically referred girls. Journal of the American Academy of Child and Adolescent Psychiatry, 33 (1), 106-113. Used by permission of Lippincott, Williams, & Wilkins Publishing.

abuse and pregnancy were highly interrelated and that adolescent mothers had familial, psychological and social profiles similar to those of adolescent drug and substance abusers. Mills, Dunham, & Alpert (1988) found that " longitudinal and cross-sectional studies of high-risk youth indicate that youth at-risk with regard to school failure, delinquency, drug-abuse, and other health-damaging behaviors are essentially the same (p. 651) with regard to social and psychological characteristics". Thus, the antisocial behavior patterns of teenage mothers, in general, qualifies them for classification as a delinquent population at great risk for academic failure.

Academic and Behavioral Risk Factors

Several factors have been found to place a child at-risk for academic failure. DeRidder (1993), stated that children in poverty are clearly at-risk for both school failure and early sexuality. Patterson (1983) stated that both economic and familial factors combine to set the stage for poor academic achievement. Negative life events such as financial problems, unemployment, family illness, crowded living conditions "chronic life hassles" and divorce are implicated as exerting negative effects on parenting (Loeber & Dishion, 1983; Patterson, 1983; Patterson, DeBaryshe, & Ramsey, 1989; Patterson et al., 1992; Webster-Stratton, 1993). For parents who are experiencing such difficulties, lapses in responsible parenting behaviors often become apparent as such parents begin to demonstrate deficits in the supervision and monitoring of the activities of their children (Patterson et al., 1992; Patterson, Stouthamer-Loeber, 1984). This lack of supervision allows inappropriate child activities to go uninterrupted and contributes to early sexuality and resulting teenage pregnancy for many adolescents. In the school setting, another major socializing agent/caregiver, the teacher, often gives up or feels helpless to impact the student's problems after several unsuccessful attempts to get the parent to "engage" in appropriate parenting activities in order to help the student (Webster-Stratton, 1993).

According to Patterson et al. (1992), the cycle of behavior problems leading to poor academic performance begins with disruption in family management practices. These disruptions occur because of certain contextual variables (Figure 2) that include factors such as social disadvantage, parental psychopathology, grandparental discipline practices, stress, neighborhood factors, marital problems, poverty and life transitions. These authors believe that child adjustment is mediated through family management practices. When the contextual variables mentioned above cause a disruption of family management practices, child monitoring and child discipline are disrupted as well. With the disruption of the critical variables of monitoring and discipline, an increased incidence of antisocial behavior becomes likely as the child learns to be coercive in order to get his or her way. As coercive behavior increases, interactions between parent and child become increasingly aversive so that the parent often begins to reject the child and (vice versa).

These coercive interactions result in the parent becoming less involved in the child's life, and the critical parent behaviors of monitoring and discipline are further reduced. As the child's negative behaviors begin to generalize to the school environment, the antisocial child experiences peer rejection and academic failure. He or she then begins to seek the association of other deviant peers similar to him- or herself. With the advent of these two negative life events, peer rejection and academic failure, the antisocial child's self esteem is lowered and depression often sets in. Antisocial attitudes, leading to delinquency, become entrenched, and the logical conclusion of this downhill cycle is a career as an antisocial adult (Patterson et al., 1992; Tremblay, Masse, Perron, Leblanc, Schwartzman, & Ledingham, 1992; Wolf, Braukmann, & Ramp, 1987). This cycle is depicted in Figure 3.

The path that exists from incompetent parenting to school antisocial behavior to delinquency in the teenage years was investigated by Ramsey, Patterson, Bank and Walker (in press) . Data were obtained from home, school and court records on 80

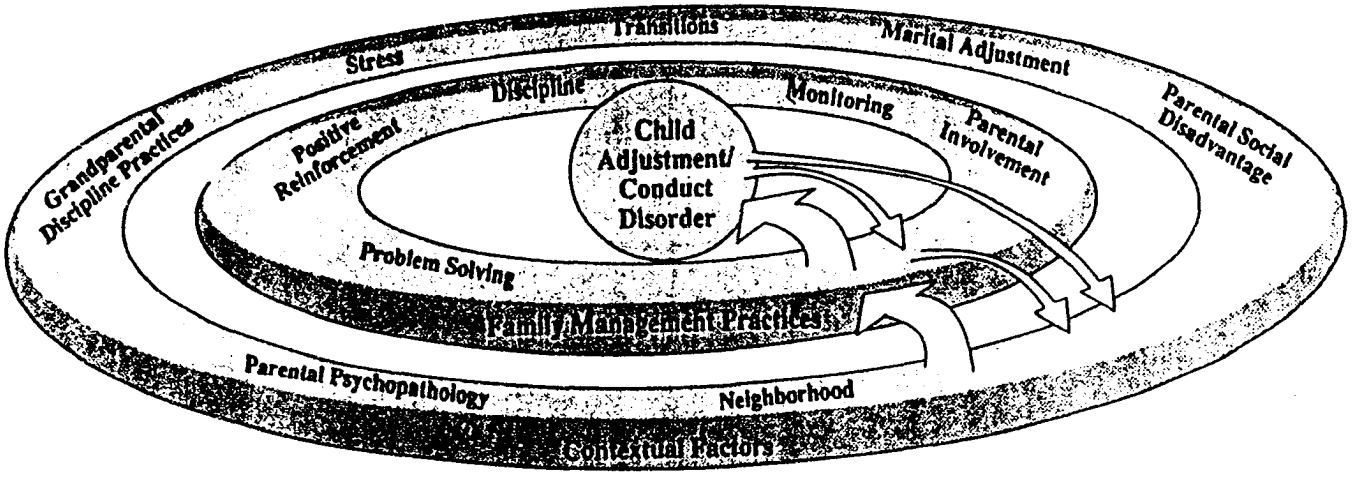

Figure 2: A context for parenting practices. Patterson, G., Reid, J., & Dishion, T. (1992). Antisocial boys. Eugene, Oregon: Castalia. Used by permission of Castalia Publishing Co.

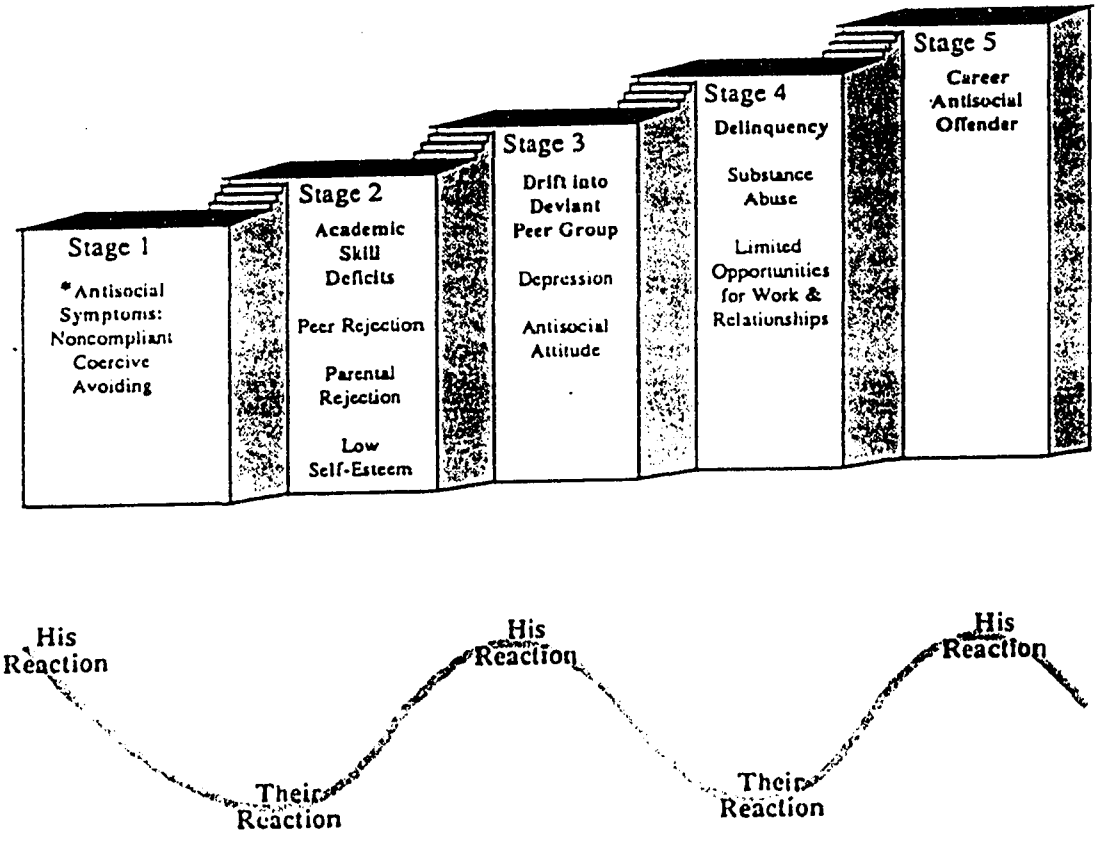

Figure 3: A concatenation of actions and reactions. Patterson, G., Reid, J., & Dishion, T. (1992). Antisocial Boys. Eugene, Oregon: Castalia. Used by permission of Castalia Publishing Co.

subjects. Of these subjects, 39 were antisocial (defined as having a highly elevated risk status for developing antisocial behavior patterns and later delinquency) and 41 were considered to be at-risk (defined as having a much lower risk status, but more vulnerable to these negative outcomes than normal students). In 4th grade, these students' parents' skills in discipline and monitoring were assessed. In 5th grade, a global antisocial score was derived that measured the amount of investment of each student in antisocial behavior patterns at school. In 7th grade delinquency was assessed from self-report of delinquent acts and review of juvenile court records. Figure 4 depicts this direct path from parenting practices to school antisocial behavior and later juvenile delinquency. Moderate relationships were found between parental monitoring and discipline in 4th grade and antisocial behavior at school in 5th grade. A well established pattern of antisocial behavior in school by 5th grade was found to be highly predictive of delinquency by 7th grade. The exceptionally strong path coefficient of .87 between school antisocial behavior and delinquency over a two year period suggests that well developed patterns of school antisocial behavior may be an important precursor for subsequent life-styles of delinquency, including teenage pregnancy. The results of the study indicate that patterns of antisocial behavior are consistent across settings and are a function of incompetent parenting practices that seem to set the child up for antisocial behavior at school. This often causes both teacher and peer rejection. Teacher rejection contributes to school academic failure while peer rejection often causes the child to seek the association of deviant peers. This is, in turn associated with acts of delinquency. The study suggests that early intervention may be important in preventing delinquency, and further, that involvement of both teacher and parent may be critical variables to manipulate in changing deviant child behavior.

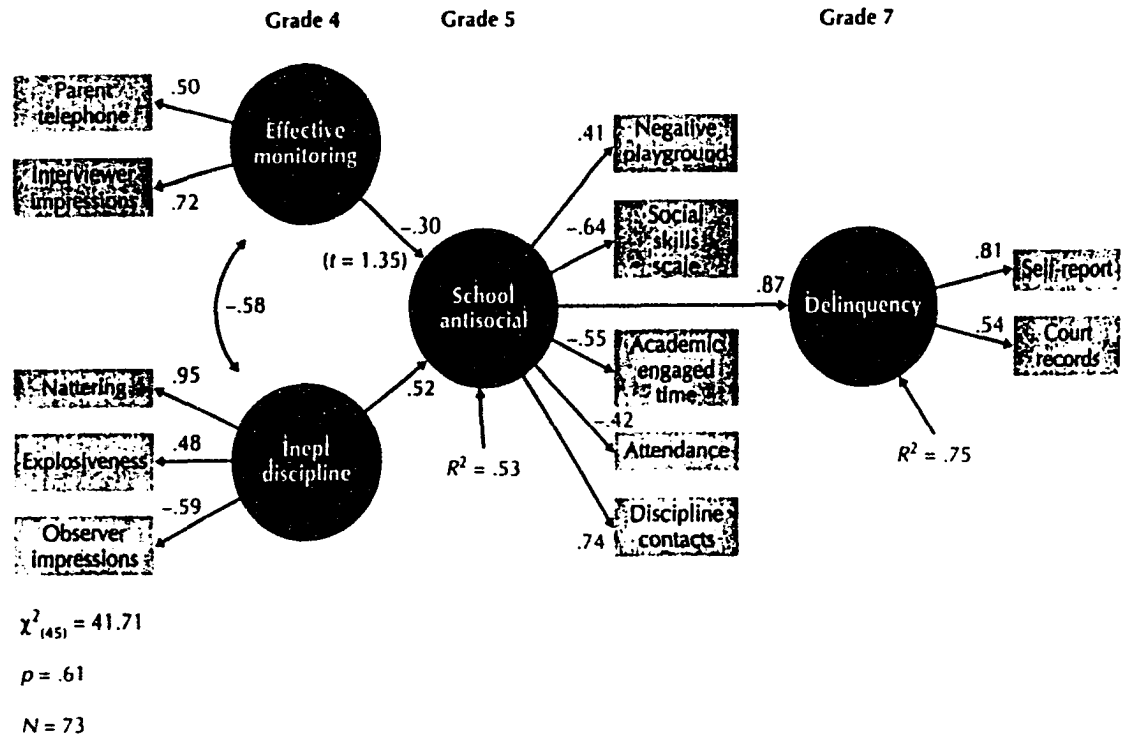

Figure 4: The path from parenting practices to school antisocial behavior and later delinquency. Walker, H.M., Colvin, G., & Ramsey, E. (1995). Antisocial behavior in school: Strategies and best practices. Boston: Brooks/Cole. Used by permission of Wadsworth Publishing Co.

Intervention Strategies for At-Risk Students

Many different treatment approaches have been tried in an attempt to interrupt the cycle of antisocial behavior. They have included, among others, various types of group and individual psychotherapy, behavior therapy, family therapy, pharmacotherapy, residential treatment and community-based treatment programs (Kazdin, 1985). Most commonly, the treatment approaches used have been of a single-focus; that is, they have focused on either the parent, the child, or the teacher. Three primary types of treatment strategies have been attempted, but often with minimally effective results. They include parent training, which involves using the parent as change agent, cognitive behavioral training which uses the child as change agent, and school-based behavioral interventions which target the teacher in the classroom as change agent.

With parents, one of the more successful treatment efforts that has been made is to train them to act as the change agents through parent management training classes (D'Zurilla & Nezu, 1982; Hanf & Kling, 1973; Kazdin, Esveldt-Dawson, French, & Unis, 1987a; McMahon & Forehand, 1984; Patterson, 1975; Patterson, 1982; Patterson, Reid, Jones, & Conger, 1975; Spivak, Platt, & Shure, 1976; Webster-Stratton, 1981a, 1981b, 1982a, 1982b, 1984). This is sometimes a difficult option to implement when there is severe family dysfunction, when there is no parent available to participate, when parental psychopathology is present, when there is poor social support for the mother, or when socioeconomic disadvantage exists (Dumas & Wahler, 1983; Wahler & Dumas, 1984; Wahler, 1980). In all these cases, families show fewer changes and are less likely to maintain treatment gains (Forehand, Furey, & McMahon, 1984; Forgatch, 1989; Kazdin, 1987; Webster-Stratton, 1985b, 1989b, 1990b; Webster-Stratton & Hammond, 1988, 1990). Additionally, parent management training attacks only one of the causal factors implicated in high rates of child antisocial behavior.

Another treatment option that has focused on the resources of the child is cognitive-behavioral therapy (Camp & Bash, 1985; Kazdin, 1987; Kendall & Braswell, 1985). Several research studies have indicated that antisocial children have deficits in interpersonal cognitive problem-solving skills (e.g., generating problem solutions). Moreover, it has been found that they often use maladaptive cognitive strategies (hostile attributions, impulsivity), and display deficiencies in cognitive development, such as delayed moral reasoning (Dodge, 1985; Kendall & Braswell, 1985). This has led to the development of cognitive-behavioral treatments, such as Problem-Solving Skills Training (Kazdin, 1987). The focus is on remediating these deficient processes by training the child in such areas as social skills (Gresham & Nagle, 1980; Ladd & Asher, 1985; Mize & Ladd, 1990), self-control, problem solving and self-statements. Overall, cognitive-behavioral treatments have not been shown to be very effective in treating antisocial behavior. Most studies of cognitive-behavioral treatments have demonstrated success of statistical significance but of only marginal clinical significance; therefore, greater behavioral changes are needed to bring children within normative levels of functioning (Kazdin, 1987). Again, this treatment option addresses only one part of the child antisocial behavior problem.

A third treatment option which has received less investigation focuses on the teacher as change agent because teacher attributional systems can effect the antisocial child's school life. Because academic achievement and learning delays are related to conduct problems (Rutter, Tizard, Yule, & Whitmore, 1976), especially in the areas of attention, language delays and reading, teachers often view such students as being disinterested in school, unmotivated in academics and careless in their work. Furthermore, because antisocial adolescents are characteristically ineffective in their interactions with adults (e.g., teachers, parents) as a result of their difficulties in complying with authority and/or lack of polite responding, teachers often attribute

negative intent to such students. These poor relations with teachers can cause behavior disordered students to receive less support and nurturing in the school setting. This can lead to academic failure. Some evidence suggests that teachers retaliate against behavior disordered children, just as peers and parents do, by responding to them in ways that increase the likelihood of reactive aggression (Webster-Stratton, 1993). The recent school-based intervention strategies mentioned above which have used the teacher as change agent have been conducted primarily with elementary school children. Some positive effects in reduction of inappropriate conduct and improved academic achievement have been reported by the Johns Hopkins Prevention Center from a study which included both the classroom-wide participation of first grade children in the Good Behavior Game (Barrish, Saunders & Wolfe, 1969) and a mastery learning procedure (Kellam & Rebok, 1992). Further, an academic intervention with socially rejected children was shown to reduce disruptive behavior, increase teacher attention, and improve social status (Coie & Krehbiel, 1984).

Single-focus models, such as those mentioned above which target only the parent, the child, or teacher are generally less effective than models involving partnerships between the school and home (Kelley, 1990; Webster-Stratton, 1993). One important reason for involving the home is because the family is most proximal to the development of problem behavior in children; therefore, the family exerts the most direct influence on the problem (Walker et al., 1995). Bullis and Walker (1995) noted that a single intervention is not sufficient to deal with the complexity of antisocial behavior patterns because youth at risk for antisocial behavior are also at risk for many other negative conditions including academic failure, child abuse, substance abuse, gang membership, unwanted pregnancy, etc. Thus, very often, antisocial students require interventions that address issues and needs extending beyond the school's boundaries (Walker et al.,1995). For such interventions to be effective, child monitoring and accountability after school

hours must be ensured. This necessitates involving the parent in a cooperative working relationship with the school. Such multiple foci models have been advocated because it is believed that targeting the child in multiple settings (i.e., home and school) and through multiple agents (i.e., parents, teachers) offers stronger treatments through enhanced treatment strength and student monitoring and accountability (Webster-Stratton, 1993).

Guidelines to maximize intervention outcomes with low-achieving, antisocial students have been offered by Walker et al. (1995). They propose that interventions should be comprehensive, intense, of long duration and implemented with fidelity. Increased monitoring, strong academic instruction, the teaching of study skills, reinforcement of positive behaviors and mild punishment such as response cost (Kelley, 1994; Walker et al., 1995) for infractions are considered to be important components of intervention for low achieving students.

A developmental continuum of services for different stages of development of antisocial behavior has been proposed by Bullis & Walker (1994). During the earlier developmental stages, the focus is on amelioration of the problems, while in grades 9 through 12, accommodation is the focus. Accommodation implies simply keeping these students in school as long as possible in order to prepare them to the maximum extent possible for the transition from school to adult life and work. Remaining in school to gain job skills is of critical importance for teenage mothers who need to be able to support themselves as well as their babies.

The treatments mentioned above can only work if they are used, and used properly (Bergan & Kratochwill, 1990; Gresham, 1989). The economic and familial factors mentioned earlier as stressors for many parents of minority inner-city children present impediments to implementation, and therefore reduce the likelihood that such parents will implement a treatment prescribed for their child. Social disadvantage is just one of several stressors that greatly increases the number of daily life hassles (Patterson et al.,

1992). Other general stressors that keep such parents "busy with life" include such negative life events as medical problems, unemployment, and poverty. As well, marital distress and divorce were found in The Oregon Youth Study to increase the number of daily life hassles from a daily average of 11.9 for intact families to a daily average of 16.5 for recently separated single mothers (Forgatch, Patterson, & Skinner, 1988). Large families contribute to the busy lifestyle of many minority parents. Further, when a parent him- or herself is antisocial, this lifestyle creates a steady stream of daily life hassles that keeps the family in transition and keeps the parent very busy just "doing life".

The other major caregivers in a student's life are teachers. Teachers, too, have seldom been found to implement treatments as planned (Wickstrom, 1995). Because of the reluctance of the two major caregivers of the child to follow a treatment regime, and because of the importance of having both caregivers participate in intervention, strategies to enhance teacher and parent participation frequently are needed.

Strategies to Enhance Treatment Implementation

Although several strategies have been used to increase treatment integrity, the most promising include: Training, performance feedback, and monitoring. These strategies are reviewed below.

Systematic training of the behaviors necessary to implement an intervention is one method to ensure that teachers and parents actually have the skills necessary to implement the intervention. Comprehensive reviews of the literature on implementation procedures by organizational, hospital, and institutional staff have revealed that simple verbal instruction (telling people) or written instruction (explaining through training manuals) are necessary but not sufficient for accurate implementation of treatment procedures (Demchak, 1987; Feldman & Dalrymple, 1984; Harchik, Sherman, Hopkins, Strouse, & Sheldon, 1989; Reid & Schepis, 1986). Rather, the direct instruction of implementation behaviors with direct supervision of rehearsal while using prompts, cues and coaching to

shape new behaviors (Sulzer-Azaroff & Mayer, 1991) has been found to be effective in getting staff to implement procedures correctly (Coissart, Hall, & Hopkins, 1977; Gillat & Sulzer-Azaroff, 1994; Harchik, Sherman, Strouse, & Sheldon, 1992). Watson and Robinson (in press) describe an approach to consultation wherein the consultee is directly taught the behaviors needed to implement an intervention.

Performance feedback is another procedure which has produced promising results in enhancing job performance and treatment implementation. Performance feedback is defined as information about present and past performance which is communicated in such a way as to influence future performance; or, information provided to the individual regarding the quantity or quality of past performance. Throughout the organizational management literature, performance feedback has been used to enhance job performance. The goal of performance feedback is to promote transfer or maintenance of skills and behaviors (Arco, 1990; Duncan and Bruwelheide, 1985; Fleming and Sulzer-Azaroff, 1989).

A review of the literature reveals that performance feedback provided by an authority figure, or someone who controls important reinforcers for the individual, is more effective than feedback provided by an equal-status peer (Duncan and Bruwelheide, 1985). Arco (1990) found that feedback provided to direct-care workers as well as their supervisors was more effective than feedback given to the direct-care worker alone. Balcazar, Hopkins, and Suarez (1986) found public posting or some form of written feedback paired with verbal performance feedback was more effective than verbal performance feedback alone. The work of Fleming and Sulzer-Azaroff (1989) demonstrated that to increase a trainer's use of teaching skill, a feedback package consisting of demonstrations, written instructions, and verbal feedback was highly effective.

Further, performance feedback is more effective when feedback is given frequently and when feedback content is accurate and specific (Duncan & Bruwelheide, 1985). A combination of process and outcome feedback also is related to increased behavior changes in staff and client (Arco, 1990). Process feedback is information given to a staff member about his or her own performance, while outcome feedback is information given to a staff member about his or her client's performance. Arco advocated that both types of feedback are needed initially, when building skills, and then process feedback should gradually be faded.

The behavioral explanation of the effectiveness of performance feedback is that it provides information or reinforcement or a combination of the two. Feedback improves performance when related to a primary reinforcer. In this sense, performance feedback may act as a conditioned reinforcer. For example, if supervisor feedback is paired with positive or negative consequences, then feedback may take on the properties of the associated events. Thus, responding may increase to avoid negative or to gain positive consequences. Feedback also may cue the individual to avoid negative feedback. Performance feedback has been demonstrated to influence the behavior of the following individuals: Nurses (Hawkins, Burgio, Langford, & Engel, 1992); direct-care workers (Arco, 1990; Fleming & Sulzer-Azaroff, 1989); and, teachers (Coissart et al., 1973; Gillat and Sulzer-Azaroff, 1994; Van Houten & Van Houten, 1977). Bell and Zemke (1992) offered the following suggestions to maximize the probability of success of a feedback "package": Provide feedback as soon as possible; direct the feedback to a specific individual and then share the feedback with all levels of administration; relate the feedback to a specific behavior goal; use data-driven, graphically presented feedback; provide both corrective and positive feedback on performance.

Teachers who received daily performance feedback implemented an intervention with greater integrity and improved student performance as a result (Witt, Noell, LaFleur,

& Mortenson; 1998). When feedback was initiated, treatment integrity increased for three teachers in the study. Treatment integrity for the fourth teacher in the study increased when feedback was paired with a case conference at which time the treatment data were made public to school administrative personnel and parents of that teacher's student. This was consistent with the findings of Arco (1990), and Duncan & Bruwelheide (1985), regarding the effectiveness of public posting of feedback and the importance of involving authority/supervisory personnel.

Monitoring implementation is another way to increase treatment integrity. Because applied behavior analysis specifies rigorous measurement procedures, acceptable ways of monitoring treatment integrity within applied behavior analysis include direct observation and the collection of permanent products (Baer, Wolf, & Risley, 1968; Cooper, Heron, & Heward, 1987; Noell & Witt, 1998; Witt et al., 1998). Permanent products are defined as observable effects which provide lasting evidence of completed behavior. When permanent products are used to provide evidence of treatment integrity they offer the advantage of being less intrusive than direct observation.

Purpose of the Present Study

The purpose of this study was to address the problem of low academic achievement of minority teenage mothers by implementing an intervention with the multiple foci mentioned above; that is, an intervention with student, parent and teacher components. This intervention was monitored carefully for treatment integrity. The extent to which performance feedback plus incentives enhanced treatment integrity for the parent of the teenage mother, and the extent to which performance feedback enhanced treatment integrity of the teacher was determined. Further, the extent to which incentives and improved parent monitoring enhanced treatment compliance for the teenage mother was assessed. Additionally, the cumulative number of absences from the target class and school disciplinary referrals were measured prior to treatment and after treatment in order

to determine if through close monitoring of these teen mothers' behavior, these forms of noncompliance were reduced.

METHOD

Participants and Setting

Participants in the following study included 9 students, and their parents and teachers, comprising 9 triads. Teachers and students attended an inner-city public high school in an urban southeastern Louisiana parish. These subjects were divided into 3 cohorts of 3 triads each. The therapist who conducted the study was a graduate student enrolled in a doctoral program for School Psychology. She was working in the school-based health clinic located within the high school, as part of the clinic multidisciplinary team which also included a Social Worker, Physician, and Nurse.

The students in this study were teenage mothers whose children attended a daycare center affiliated with a high school where the teen mothers were enrolled. The purpose of this daycare center's affiliation with the school was to make it possible for the teenage mothers enrolled in the school to successfully continue their high school education. The mission statement of this school-affiliated daycare center is "to enhance the educational and economic outcomes of teen mothers and their children so they will be self-sufficient members of the community". Funding for this study was provided by a grant written specifically to be used to benefit the young student mothers who used this daycare facility.

Students. Students included in the 3 cohorts were minority teenage mothers in grades 9 through 12. These students: (a) were at-risk for failing because of their accumulation of school absences (b) had Wide Range Achievement Test Grade Equivalent Scores of 6th grade or above on either the Math or Word Recognition Subscales, depending on the targeted class, (c) had 10 or more unexcused absences during the first semester of the school year, (d) were not on routine medication, (e) were not in special education, (f) had no history of assault in their disciplinary records, (g) exhibited performance deficits rather than skill deficits in the target class (see Procedure), (i) had

their baby or babies enrolled in the daycare center affiliated with the school, and (j) had a parent who met the inclusion criteria for the study.

Teachers. The teachers in each of the triads were certified to teach at the high school level. Teacher demographic information collected included (a) gender, (b) age, (c) type of degree held, (d) number of years of teaching experience, and (e) type of certification held (Table 1).

Table 1

Teacher Demographic Information Form
Name: _____
Gender: _____
Age: _____
Type Degree Held: _____
Years of Teaching Experience: _____
Type of Certification: _____

Teachers were recruited for the study because they had as students in their classes minority teenage-mothers who were frequently truant, and whose class achievement was inadequate. Teacher participation was voluntary, and was encouraged by an announcement made by the Principal of the school, and a letter (Appendix A) written to the teachers by a therapist from the school-based health clinic. This letter was accompanied by a questionnaire (Appendix B) to be completed by the teachers. Only one of the targeted child's teachers was included in the academic intervention described here although students' attendance was monitored across the day for the purpose of awarding incentives for improved class attendance.

Teachers were included in the study based upon four criteria. First, they were included only if they had a student who met the criteria for acceptance into the study.

Second they were included only if they said they typically provided their students with a daily assignment which was graded 4 out of 5 days. The academic grade could be derived from either homework or classwork assignments. Third, teachers had to verbally agree to implement all steps of the academic intervention. Fourth, teachers were included in the study only if a pretreatment classroom observation indicated that a random sample of students in the class was academically engaged (Appendix C) > 70% of the time. These criteria were established to insure that teachers were willing to participate, that the academic achievement of the targeted student was a problem, that a consistent dependent variable was available, and that other factors in the classroom (i.e., disruptive behavior) did not interfere with the student's achievement or the conduct of the study.

Parents. Demographic information collected on parents included (a) relationship to student, (b) age, (c) marital status, (d) work status, (e) education, (f) number of children in the household, (g) total number in household (Table 2). Parents were included in the study based on the following criteria: (a) Attendance at a preliminary meeting with a therapist to review their child's school performance and progress, (b) having the teen mother living in the house with them, (c) reporting possession of a reliable means of transportation to school, (d) having a telephone, (e) and being available to come to the school for meetings.

Dependent Variables

The study yielded data on two outcomes, treatment integrity and student behavior. These variables are described below.

Treatment Integrity. Treatment integrity is the degree to which a treatment agent implements a treatment as it is intended to be implemented (Gresham, 1989; Gresham, Gansle & Noell, 1993; Monchner & Prinz, 1991; Yeaton & Sechrest, 1981). In this study, treatment integrity represented the percentage of treatment steps completed by teachers and parents and was assessed by review of daily permanent products.

Table 2

Parent Demographic Information Form
Name: _____
Relationship to Student: _____
Age of Mother: _____
Age of Father: _____
Marital Status: _____
Place of Work: _____
Work Days: _____
Work Hours: _____
What hours are you at home? _____
Level of Education: _____
Number of Children in Your Household: _____
Total Number in Your Household: _____
Do you have your own transportation? _____
Do you have a phone in your home? _____ Phone Number:_____
Does your daughter, the teenage mother, live in the home with you? _____
Are you at home in the evening? _____ Between what hours? _____ to _____

Teacher treatment integrity was measured through the collection of daily permanent products which reflected the performance of each treatment step. Teachers' completion of the student daily behavior drill card (Appendix D), as well as the student academic work and record of assignments maintained by the teacher in a folder in the classroom, provided the two sets of permanent products from which it was possible to determine the integrity with which the teachers implemented their part of the intervention.

On days when teachers could not complete any intervention steps due to interrupted schedules (e.g., review days; assemblies; standardized testing days) this was verified and a code of N/A was given. That step was not used in computing the total treatment integrity score.

Performance of each of the parent treatment steps was verifiable from a daily telephone interview conducted between parent and child which was recorded on the answering machine of a therapist. From the recorded message, treatment steps were tabulated on the Parent Treatment Integrity Checklist Form (Appendix E) and the integrity with which the parent implemented his or her part of the intervention was calculated. The score for treatment integrity was computed by dividing the number of steps completed correctly by the total number of applicable steps.

Using the Treatment Integrity Checklist Forms for parents (see Appendix E) and teachers (Appendix F), treatment integrity for each participant was scored by the therapist from a review of permanent products. If the permanent product reflected an omitted intervention step, an "x" was placed beside the step by a therapist. Otherwise, the score for treatment integrity was computed by dividing the number of steps completed correctly by the total number of applicable steps.

Student Behavior. Two primary student behaviors were measured for each of the 3 cohorts: (a) Treatment compliance, and (b) student academic performance. Of secondary interest was student attendance information (i.e., number of days absent from the target class), and student disciplinary referrals.

Students' treatment compliance reflected the performance of each students' treatment steps and was recorded as a score on the Student Treatment Compliance Checklist Form (Appendix G). Treatment steps were contained on the behavior drill card (see Appendix D), and specified the following behavioral and academic expectations: Arriving on time to class, bringing materials, turning in homework and/or classwork and

receiving a passing grade, treating peers with respect, speaking respectfully to the teacher, speaking only with permission and coming to the clinic to check in with the therapist. Further, the student was required to participate in a daily recorded telephone interview with her parent. The student behavior drill card (see Appendix D) which was collected at a daily meeting between student and therapist, and the recorded parent-child telephone interview provided permanent product evidence of the student's treatment compliance.

Student academic performance was measured through grades on homework or classwork assignments. These assignments in the student's targeted class were scored in a cursory way by the teacher before the end of the class period in order to provide the student immediate academic feedback. Typed criteria for assigning this grade were provided to the teacher (Appendix H). This quick-score grading procedure involved the teacher scanning the completed homework or classwork assignment, spot checking specific items, and then assigning a global grade, as follows: (a) 3 = generally acceptable, defined as work being as complete as possible given the time available, and the majority of items spot-checked were correct, (b) 2 = OK, defined as work being as complete as possible given the time available, with a passing grade (i.e., >70% correct, (c) 1 = insufficient progress, defined as some work done in the time allotted and < 70% of the total items assigned correct, (d) 0 = not acceptable, defined as very little work completed in the time allotted, most items wrong, or no paper turned in. Written assignments were stored in a folder in the classroom. This folder was checked on a weekly basis for scoring accuracy by a therapist from the clinic after the teacher had thoroughly checked the paper and assigned a final grade. In the event that a therapist discovered that the teacher had scored an assignment incorrectly, then the therapist rescored the assignment correctly. The therapist's scores were recorded at the end of each week as the student's actual academic grade. These scores could range from 0 - 100 percent.

A secondary variable of interest was absences from class. The cumulative total of absences from the target class for each student was recorded. These absences were monitored via the behavior drill card (when the student was absent, no card was returned) and then verified against teacher records. If there was a discrepancy, teacher records were used. Another secondary variable of interest was the number of student disciplinary referrals to the school disciplinarian's office. These were verified from computerized records of student infractions that were available for all students enrolled in the school. Infractions coded into the computer for the students in this study included referrals for tardies, disrespect, disobedience, leaving campus without permission, and cutting class.

Materials

All materials necessary for implementing the intervention were provided to the participants by the therapist.

Student Materials. Students were given the Student Checklist (Appendix I) indicating the steps they were responsible for performing in order to correctly carry out their part of the intervention. Also, they were given their daily behavior drill card (see Appendix D).

Teacher Materials. Teachers were provided three types of materials. First, they were supplied with the Teacher Checklist (Appendix J) to which they could refer, if necessary, during the performance of the intervention. The Teacher Checklist stated, in order, each behavior that the teacher was expected to perform as he or she implemented the intervention with the student. Second, the teacher received typed criteria (Appendix K) to post near her desk reminding her of specific student behaviors to watch for during the class period, in order to assist her in marking the behavior section of the student's card at the end of the class period. Third, typed criteria for the quick-score method of providing a grade on the daily assignment before the end of the class period were provided (see Appendix H). Fourth, a standard manila folder was given to the teacher in

which she was to collect academic permanent products, (i.e., completed student homework or classwork assignments).

Parent Materials. Parents were first given the Parent Checklist indicating the intervention implementation steps (Appendix L). Second, the parents were provided with a typewritten sheet which contained the therapist's name and telephone number (Appendix M).

Design

A multiple baseline across subjects design (Barlow & Hersen, 1984) was used to evaluate changes in student behavior and treatment integrity. In this study, 3 cohorts of 3 students, 3 parents and 3 teachers were treated in an A-B-C-D analysis which consisted of Baseline, Training, Treatment, and Enhanced Treatment. No maintenance phase was included because of ethical concerns about removing a treatment. Instead a gradual fading or modification of treatment was conducted following completion of the study as the end of the school year approached.

Baseline. Prior to implementation of treatment, student academic performance, as well as cumulative number of absences from the target class and total number of disciplinary referrals for the year, were assessed. Student baseline data came from the following sources. First, baseline data for student academic behavior were collected from each teacher's grade book. These data were graphed sequentially as the grades on the 5 assignments immediately preceding onset of treatment. For one of the secondary variables of interest, student school attendance, baseline data were the cumulative record of each student's absences taken from the target class teacher's grade book. For the other secondary variable of interest, disciplinary referrals, the baseline was the number of referrals for each student documented in the school computer on the morning of the day the study began. Normal classroom and parent contingencies were in effect.

Training. The training phase lasted one day. Data reflecting treatment integrity for parents and teachers, as well as student treatment compliance, academic performance, disciplinary referrals and absences were collected. During this phase, participants were trained by two therapists to perform treatment steps. The therapist who was brought in to assist with training day was also a trained, graduate student enrolled in a doctoral program for School Psychology. The rationale for performing each of the treatment steps was provided to each participant, parents, students and teachers (Appendices N, O, and P respectively). During the training phase, all participants (teachers, students and parents) were coached and prompted by a therapist until they performed their part of the intervention unprompted, with 100% integrity.

The skills needed by parents to implement the intervention accurately were taught to them (see Appendix L) on the first day of intervention implementation. Using the techniques of verbal elaboration, modeling, coaching, prompting and cueing, parents practiced their telephone interview intervention steps until they could perform all steps in sequence with 100% accuracy in the presence of the therapists.

For teachers, training on treatment steps was initiated on the day prior to intervention implementation. On the morning of the first day of intervention implementation, teachers received a "refresher" training session. Using the same teaching techniques as were used with the parents, outlined above, teachers implemented the individual steps of the intervention (see Appendix J) until they performed the treatment steps in sequence, with 100% accuracy in the presence of the therapists. Next, they performed all steps in the classroom with their student, in the presence of a therapist, until both teacher and student could perform the steps with 100% accuracy.

Students were taught the treatment steps on the first day of intervention implementation (see Appendix I). Students were trained in 3 separate sessions. They were first trained with parents by practicing the telephone interview (see Appendix L).

Later, they were trained with their teachers during class time. Finally, students received a training session with therapists in the clinic setting near the end of the day. In the clinic, students practiced their intervention steps under supervision of the therapists until they could perform them with 100% accuracy. The same techniques of verbal elaboration, modeling, practice, prompting, and cueing were used to train students.

Treatment. Following the day of training, treatment was initiated. Teachers and parents were expected to be able to perform all steps as shown in Appendices I, J, and L. During this phase, teachers and parents were asked to implement the intervention independently; therefore, the therapist had no contact with them during this phase.

The treatment consisted of a School-Home Note (Kelly, 1990), which was augmented by a therapist working within a school-based health clinic. At school, the student carried the note, referred to here as the behavior drill card, in card form (see Appendix D). This card was completed daily by each of the student's teachers. The card was monitored during a daily check-in procedure at the school-based health clinic by a model peer and the therapist to evaluate progress in the target class and to determine if the student had attended all classes. Each evening, the student participated with her parent in a recorded interview regarding the target class, to provide a permanent product that the parent was monitoring the child's school performance.

During treatment, the student was instructed to carry the behavior drill card to each class and have it signed at the end of the period. This was primarily for the purpose of monitoring attendance and giving the student feedback across her day. In the target classroom, the card was marked by her teacher and one point was given for each: (a) being on time, (b) having materials, (c) completing assignments, (d) earning a daily academic quick-score grade of "2" or better, and (e) earning check marks for at least 2 out of 3 appropriate classroom behaviors listed on the card. Finally, this teacher signed the card and returned it to the student.

At a preestablished time each day, the student brought the card to the therapist and a model peer in the clinic. This peer was another student teenage mother who was judged by her teachers to be exemplary because of her attendance, behavior, and academic success. This purpose of using a peer as a role model was to encourage the teen mothers treated in the study to strive to attain the same high goals for school performance as those attained by their model peer. The teen mothers were "checked in" at the clinic and had their cards graded by their model peer who then handed the card to the therapist. Then each teen mother received feedback (Appendices Q and R) from the therapist about her performance on the card, and her progress for the day. Therapist feedback to each teen mother consisted of (a) reminding the student of the intervention goals, (b) verbally praising her for correctly executed treatment steps as reflected on her behavior drill card, (c) oral review of omitted treatment steps, (d) answering student questions and comments about the treatment, (e) soliciting a commitment to perform the steps correctly in future, (f) prompting the student to check in to the clinic the next day for another feedback session, (g) reminding students of rewards for compliance with treatment, and (h) having the student graph (Appendix S) her own results for the day. For attending the clinic with the completed card, one point was given. A score of "6 out of 6" represented 100% treatment compliance. Finally, each student received a note from the therapist summarizing her academic, and behavior progress for the day. This "Note Home" (Appendix T) indicated to the parent whether or not the parent should provide the student a home reward that day for good performance. The rewards had been previously negotiated between parents, students and therapists prior to the training meeting. If performance on the daily behavior drill card (see Appendix D) reflected a score of "5" or "6", then the student was to receive the home reward. Finally, the student was required to participate in a telephone interview with her parent in the evening at home.

During the treatment phase, the permanent products generated by each participant's performance of the treatment steps made it possible for the therapist to monitor treatment integrity for parents and teachers, and treatment compliance for the students.

Enhanced Treatment. Enhanced treatment was designed to increase treatment integrity for teachers and parents, and treatment compliance for students. In an effort to impact the teen mothers' low academic achievement, classroom behavior problems and school truancy, all of which are highly durable features of antisocial behavior, a strong treatment package was used during this phase. The components of enhanced treatment included both performance feedback (for parents and/or teachers), and monetary rewards (for parents and students). These two components were introduced simultaneously in order to provide the strongest treatment possible, since previous "pilot" efforts in this school had indicated that a lesser treatment was ineffective. It is recognized that simultaneous introduction of treatment components precludes determination of the individual contribution of each component to treatment gains; but, it was considered both necessary and ethical, in order to impact the stable problems mentioned above and to encourage academic success in order to fulfill the goals of the agency which funded this work with the teen mothers.

Performance feedback was provided to increase treatment integrity for teachers and/or parents. When treatment integrity scores for either of these participants decreased to below 75% and remained low and stable or began trending further downward, the enhanced treatment phase was initiated. Thus, either parents, or teachers, or both (i.e., whichever participant's treatment integrity was consistently below criterion level) could receive performance feedback, depending on need. The decision to implement enhanced treatment was made with reference to each student's academic performance and treatment

compliance data. If both the student's academic performance and treatment compliance were consistently 80% or higher, then enhanced treatment was not implemented.

For *parents*, performance feedback was delivered in two ways, daily via telephone and weekly in face to face meetings. Telephone performance feedback sessions were conducted Monday through Friday evenings during the week. Face to face feedback sessions were conducted once weekly. The daily performance feedback which was provided by a therapist to the parents via telephone consisted of the following steps: (a) Verbal presentation of data on intervention usage (b) praise for correctly executed intervention steps, (c) corrective feedback regarding intervention steps incorrectly executed or omitted, (d) addressing the parent's questions or comments regarding treatment, (e) obtaining a verbal commitment to perform the intervention correctly, (f) prompting the parent to conduct the telephone interview again the next day, (g) reminding the parents of monetary rewards to be earned for implementing the treatment with integrity, and (h) reminding the parent that there would be a face-to-face meeting with the therapist later that week while reiterating the appointed time.

Once weekly, at an appointed time, parents were required to come in to the school-based health clinic for brief, face to face performance feedback sessions with the therapist. The weekly parent performance feedback sessions included (a) reminding the parent of the intervention goals, (b) presentation of graphed data including parent treatment integrity, as well as student treatment compliance and academic performance, (c) oral review of omitted intervention steps, (d) positive feedback in the form of praise for correctly executed intervention steps, (e) answering the parent's questions and comments about the treatment, (f) soliciting a verbal commitment that the parent would perform the intervention steps correctly in future, (g) reminding the parent of rewards to be earned for implementing the treatment with integrity, and (h) prompting the parent that another face

to face feedback session would take place with the therapist the following week and establishing the appointed time.

Monetary rewards for parents were given based on both daily and weekly performance. For daily participation, parents earned $2 each time they conducted the evening telephone interview with their daughter (a possible $10 per week). Additionally, if they had conducted the telephone interview with their daughter for the five previous school nights, then they were paid a $10 bonus when they came in for their once-weekly performance feedback meeting. At this face to face meeting, parents were given their daily earnings plus the bonus, if earned, in a lump sum of $20 or less.

Parents who did not come to school for their weekly performance feedback meeting with the therapist still received performance feedback because the therapist either went to that parent's home or to their work to deliver it. For not coming to school for their appointment with the therapist, these parents forfeited their bonus and any money they had accrued from conducting the telephone interview with their daughter during the previous week.

The *teacher* component of the enhanced treatment also consisted of daily face to face performance feedback conducted for 3 to 5 minutes after school by the therapist in the teachers' classrooms. Feedback sessions for teachers included (a) reminding the teacher of the intervention goals, (b) graphic presentation of the teacher's treatment integrity and the student's treatment compliance for that day, (c) oral review of any omitted intervention steps, (d) positive feedback in the form of praise for correctly completed intervention steps, (e) answering teacher questions and comments about the treatment, (f) soliciting a verbal commitment that the teacher would perform the steps of the intervention correctly in the future, and (g) prompting the teacher that another feedback session would take place with the therapist the following school day.

For *students*, the monetary rewards were designed to improve treatment compliance. Each student was immediately given a daily reward of $3 each time she checked into the clinic and obtained a suitable score ("6") on her behavior drill card (see Procedure). Additionally, each student was given a $15 bonus on Friday if she had 100% attendance in all class periods of the week, participated in the telephone interview each day with her parent, and scored "6" on her card 4 days out of 5. During the daily clinic sessions, students were reminded of rewards to be earned for complying with their treatment.

Procedure

Subject Screening and Selection. Teachers, who had in their classrooms teen mothers with a child in the school-affiliated daycare, received a letter (see Appendix A) and attached Teacher Questionnaire (see Appendix B) from the therapist. Each teacher responded by providing information about his or her student on the questionnaire. Then the therapist conducted an interview with the teacher in which additional in-depth information was solicited from the teacher about the nature of the student's problems. Student academic performance was evaluated from the teacher's grade book. At the end of the teacher interview, the therapist asked for the teacher's permission to visit the classroom in order to conduct a classroom observation. Subsequently, the observation was conducted by the therapist prior to any contact with the nominated student to verify that no part of the proposed intervention was currently being used in the classroom and to observe the level of academic engagement in the classroom.

Students who participated in this study were required to have at least 6th grade skills and a performance deficit for daily academic assignments in their targeted class. Previous research by Morgan-Datrio, Northrup, LaFleur, & Spera (1995) revealed that 9th grade students at the high school where this study was conducted had an average grade equivalent reading level of 3.2; therefore, to insure that student participants were capable

of completing assigned work, two screening procedures were used. To determine the achievement level of the students, either the Word Recognition or Mathematics Subscale of the Wide Range Achievement Test was administered, depending on the student's targeted class. Finally, a performance deficit screening procedure (Witt et al; 1998) was conducted in order to further rule out the possibility that the student had an academic skills deficit and therefore was incapable of doing the work required in the classroom.

The performance deficit screening involved asking each student to complete a previously assigned work sheet on which she had scored 70% or less during classwork. Students were told that if they improved their score on the worksheet by 25% and it put them into the passing range, (i.e., >70%), then they would receive $3.00. This procedure also served to test whether the $3.00 which the student could earn each day by successfully completing her treatment steps would function as a reinforcer for performing the intervention. The student then worked independently, receiving no help from the therapist. If the student did not meet the goal of 25% improvement, which moved her up into the passing range on the worksheet, then a second worksheet was attempted. If the student still did not meet the goal, she was considered to have a skill deficit and was excluded from the study; however, the student did receive a soft drink and praise for having worked hard. If the student's score improved by at least 25% over the initial score on either of the worksheets, and moved into the passing range, then the student was considered to potentially have a performance rather than a skill deficit. The logic behind the performance deficit hypothesis is that if the student improved her performance significantly in the presence of a contingency for "hard work", but did not demonstrate this same level of performance in the classroom, then the problem was potentially attributable to a performance deficit rather than a skill deficit. Only performance deficit students were included in the study.

For the teen mothers who had been nominated by a teacher on the Teacher Questionnaire (see Appendix B), but who did not meet the inclusion criteria, the teacher received verbal instructions and recommendations as to how to enhance their performance. No data were formally collected on these students, their parents, or their teachers.

Parent Training. All parents received a letter from the Principal of the school (Appendix U), and then a follow-up phone call from the therapist on the day before the training meeting to encourage and remind them to attend. Student grades, disciplinary reports, absences, and tardies were reviewed with parents to update them on their daughter's school progress. Parents were told that an accumulation of disciplinary referrals, tardies and absences, and failing grades placed a student at elevated risk for dropping out of school and that their daughter had been identified by one of her teachers as experiencing excessive absences and academic performance problems in that teacher's class. Then, the intervention and the importance of each participant's role (i.e., teacher, student, parent and therapist) in providing continuity of treatment across the student's entire day was explained. Parents were given a copy of their treatment steps (see Appendix L) and each step was explained, while the importance of daily consistent application of each treatment step was emphasized.

Two therapists modeled the parent treatment steps through role playing the parts of teen mother and her parent. Then parents practiced the intervention until they attained 100% accuracy on performance of the treatment steps.

Parent-Student Training. Immediately following parent training, students were asked to join the parent meeting. Therapists provided an overview of the intervention to the students. Parents then explained the parent/student part of the intervention to their own daughter. Following that, parents and students practiced the parent/student intervention steps together until 100% accuracy was reached by both. Therapists

observed implementation and corrected any intervention steps that were performed inaccurately. Following this phase of training, students and parents made a practice call to the therapist's answering machine. A therapist observed and cued treatment steps when necessary until these calls were made with 100% accuracy. Then, the recording was replayed for parent and daughter so that they could hear the correct interview they had just completed.

Teacher Training. Teachers of the target class were trained initially on the day prior to the parent meeting. At that time, they received their packet of materials which included the Teacher Checklist (see Appendix J), a copy of the student behavior drill card (see Appendix D), typed criteria to remind them to watch for specific student behaviors during the class period in order to rate the student's daily behavior (see Appendix K), a typewritten sheet of how to assign the academic grade (see Appendix H) and a folder in which to collect the student's assignments. The intervention was explained to the teachers. Each teacher was then taught how to assign the daily academic grade, rate the student's behavior, and mark the student daily behavior drill card. Finally, two therapists demonstrated the intervention through role-playing the intervention steps as "student" and "teacher" models. The teacher was then paired with one therapist who acted as the "student", and the teacher practiced the "teacher" role. A second therapist coached and prompted the teacher in correct performance of each step when necessary as the teacher practiced the intervention. Training ended when the teacher could perform all steps with 100% integrity.

Teacher-Student Training. On the day the intervention began, prior to school, each of these teachers received an individual "refresher course". At that time, the teacher performed the intervention with the therapist until 100% accuracy was reached. Then, when the student came to the teacher of the target class at her regular class period, training continued as the teacher explained the intervention to the student. A therapist

was present to prompt the teacher if a step of the intervention was omitted or explained incorrectly. The teacher then performed the intervention from start to finish with the student until the entire sequence of steps was executed with 100% integrity. A behavior grade requirement of earning at least 2 check marks out of 3 for specific appropriate classroom behaviors (see Appendix K), and an academic quick-score grade requirement of "2" or better which the student must attain in that teacher's classroom in order to earn reinforcement, was established in the presence of the therapist. For behavior grades of 2 check marks or better, one point was earned, and for academic quick-score grades of "2" or better one point was earned. It was therefore possible to earn "6 out of 6".

Student-Therapist Training. Students were instructed first as a group outside the clinic setting. Two therapists modeled the intervention steps, imitating "therapist" and "student". Then individually, students were asked to play the "student" role with a therapist. Training continued until students reached 100% accuracy on performance of the entire sequence of intervention steps. At that time, students were taken individually to the school-based health clinic to practice the steps once more with a therapist.

Therapist-Model Peer Training. During the week prior to the study, three model peers were trained by the therapist so in case of absence a peer would always be available for check in time at the clinic. These model peers were instructed in how to interact positively with the teen mothers in the study when they came for check in time, and they were trained to grade the teen mothers' behavior drill cards. These behaviors were trained in three sessions through verbal elaboration, role-play, prompting, and practicing the grading tasks. During the final session, when each peer model could correctly score 10 behavior drill cards, each marked differently, at a rate of 1 card per minute then she was considered to be trained to 100%. The model peers received a "refresher course" on the morning of training day. The meaning and import of confidentiality were explained during each of these training sessions. Model peers

pledged to uphold confidentiality and were required to execute a written contract to that effect.

Contracting and Informed Consent. Following the initial parent meeting, teachers were brought into the meeting where along with the parent, the student and a therapist, a contract was executed together (Appendix V). Signed, affirmative, informed consent was obtained from all participants upon execution of this contract. Teachers, parents and students agreed that the intervention was acceptable and appropriate for the problem. They then agreed to carry out all treatment steps. The therapist agreed to monitor participation. During enhanced treatment, the contract was revised to include therapist provision of incentives (Appendix W).

RESULTS

Procedural Reliability

In the study which follows, to insure that all experimental procedures were implemented with fidelity, several monitoring strategies were used. The figures below represent reliability calculations across all 3 cohorts.

Training. To insure that the therapists conducted the training sessions correctly with the students, teachers and parents, a trained independent observer used a copy of the typed intervention steps (see Appendices E, F, and G) when observing each training session. The observer checked off on this form whether or not the therapists addressed each intervention step during the training of each of the parents, teachers and students in the 9 triads of participants. Procedural reliability was calculated by dividing the number of steps explained by the total number of intervention steps and then multiplying by 100. Therapist fidelity to protocol was 100% for parents, 100% for teachers and 100% for students in each of the training sessions.

In the portions of the training sessions where students were trained by parents and then by teachers, two independent observers verified that either the parent or the teacher, as appropriate, addressed each intervention step. Procedural reliability was calculated by dividing the number of steps explained by the total number of intervention steps and then multiplying by 100. Parent fidelity to protocol for student training was 100%, as was teacher fidelity to protocol for student training.

Performance Feedback to Parents and Therapist-Student Feedback. Reliable delivery of face to face performance feedback was assessed during the first of the therapist/parent sessions (Appendix X), and during 30% of the remaining sessions. An independent observer recorded whether or not each face to face performance feedback step was completed by the therapist. Procedural reliability was 94% (range 88-100%). For parent telephone performance feedback, fidelity of therapist implementation was

assessed from the tape recording of the first of these sessions and 30% of all remaining sessions. Tapes were evaluated by an independent agent and transcribed onto data collection forms (Appendix Y). Procedural reliability was 94% (range 88-100%).

Reliable delivery of therapist student feedback was assessed by an independent observer during the first of the therapist/student sessions (see Appendix Q) and in 30% of remaining sessions. Procedural reliability was 95% (range 89-100%) for students receiving therapist feedback.

Although the teachers in this study did not receive performance feedback, so therefore no reliability was taken, a form has been included (Appendix Z) on which reliability could be recorded.

Transcription of Data Collection Forms. The accuracy of scoring of data collection forms was verified from permanent products by two independent raters. These raters transcribed 50% of the data collection forms. They were trained in data collection procedures and were provided with information as to how to score the permanent products generated by the intervention (i.e., student academic work maintained in folder, parent telephone interview calls, and behavior drill card) as well as how to score the blank data collection forms. The raters reviewed these permanent products in order to evaluate the accuracy of grading of academic work, and accuracy in scoring and recording treatment integrity and treatment compliance scores of the participants. Percentage of agreement between these two raters was calculated by dividing the number of agreements by the total number of agreements plus disagreements and multiplying that figure by 100. The mean agreement between raters was 94% (range 92-96%)

COHORT 1

Treatment Integrity

Teachers. Because teacher treatment integrity remained consistently above the designated cut-off score of 75% or higher for all teachers in Cohort 1, (for Cohort 1, the overall M=99%), these teachers did not enter the enhanced treatment phase of the study; thus, no performance feedback was provided to them. Figure 5 graphically depicts levels of teacher treatment integrity for Cohort 1, while Table 3 compares the average percent of teacher treatment integrity for each teacher in the 3 triads of participants.

Table 3

Cohort 1: Average Percent of Teacher Treatment Integrity		
Name	Triad Number	Average Percent
Zena's Teacher	Triad 1	99%
Cassandra's Teacher	Triad 2	100%
Diane's Teacher	Triad 3	98%

As may be seen in Table 3, treatment integrity for Zena's teacher, Cassandra's teacher and Diane's teacher averaged 99%, 100% and 98%, respectively. These data are also depicted in the graphs of the individual triads of Cohort 2 participants (Figures 6, 7, and 8).

Parents. Information regarding levels of treatment integrity for Cohort 1 parents may be found in Table 4 and in Figure 9. Treatment integrity for parents was variable during the treatment phase for Cohort 1, so enhanced treatment was implemented with all 3 parents to boost their participation in the intervention. This combined treatment of cash incentives plus daily telephone and weekly face to face performance feedback, which was provided to these 3 parents, resulted in increases in treatment integrity for all.

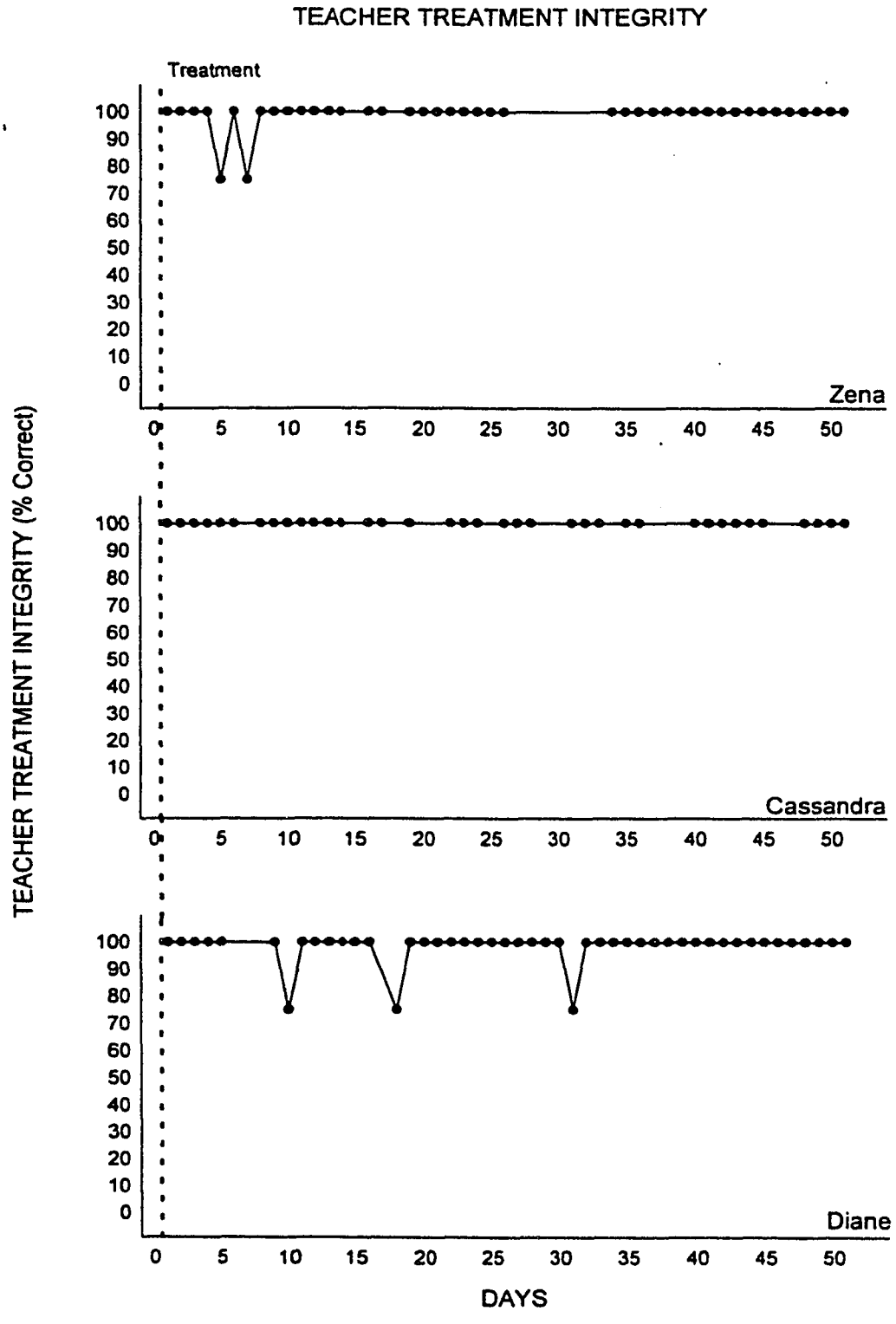

Figure 5: Cohort 1: Teacher treatment integrity expressed as percent of treatment steps completed correctly by teachers in Cohort 1.

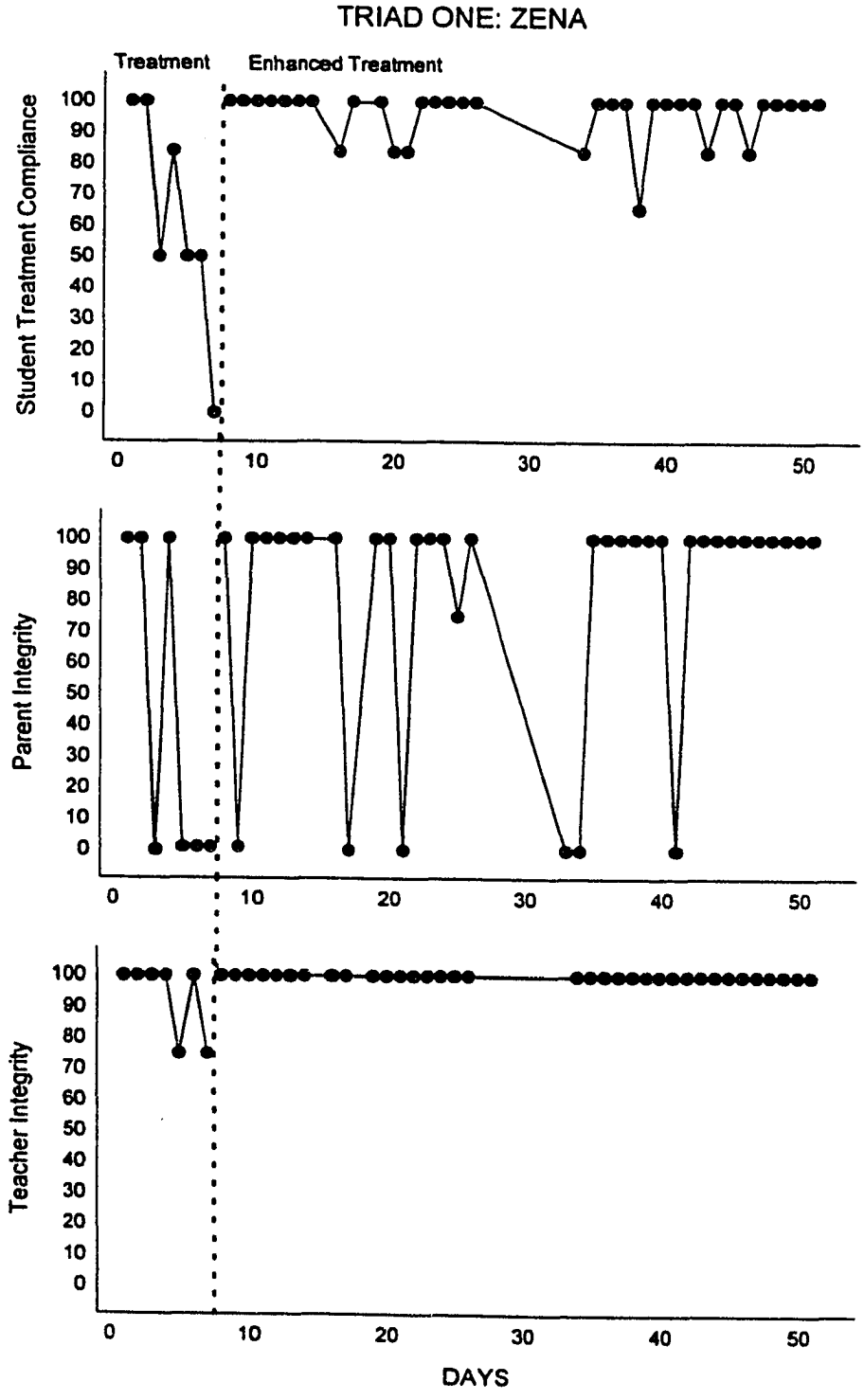

Figure 6: Cohort 1: Triad 1 - Treatment compliance for Zena, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

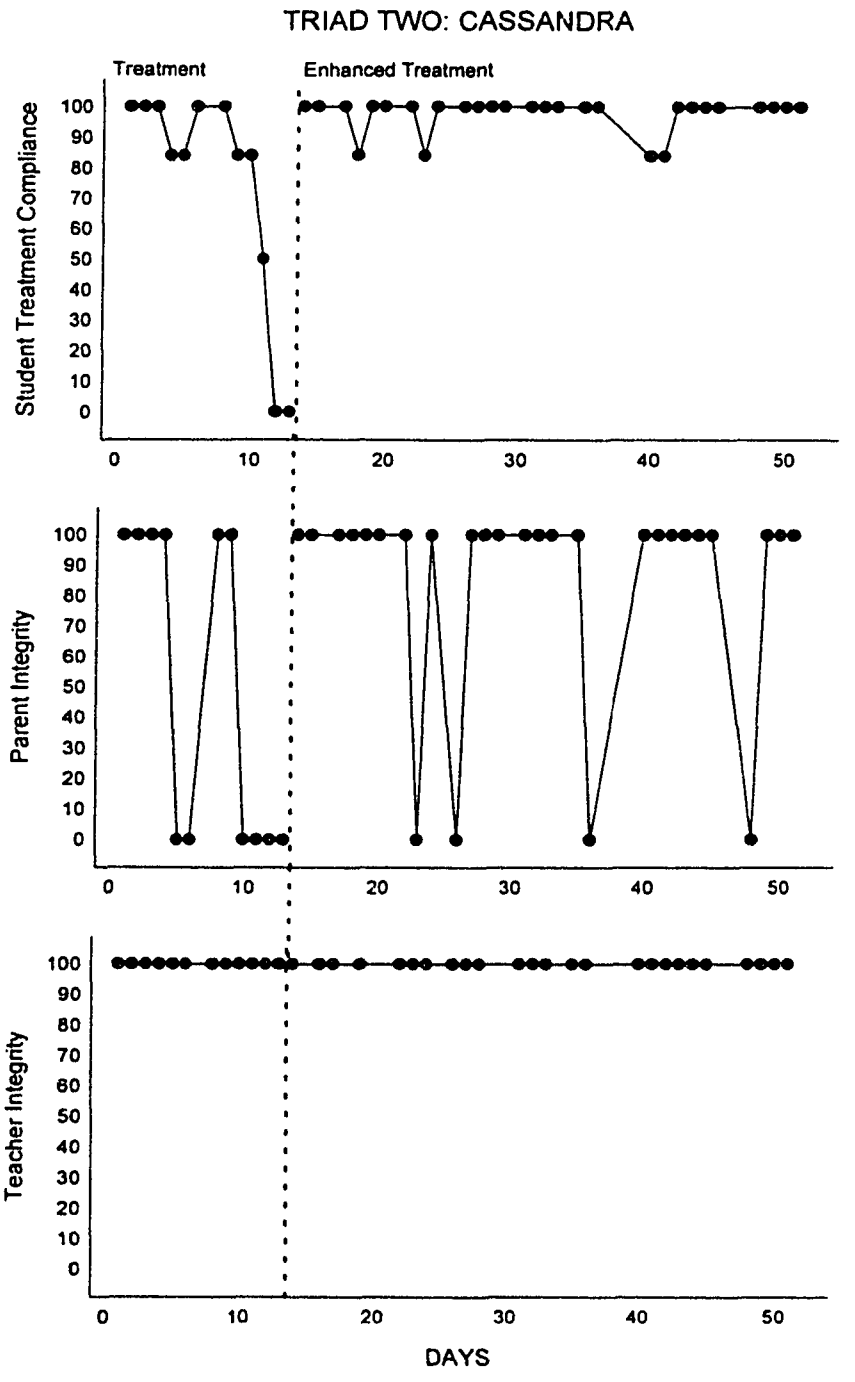

Figure 7: Cohort 1: Triad 2 - Treatment compliance for Cassandra, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

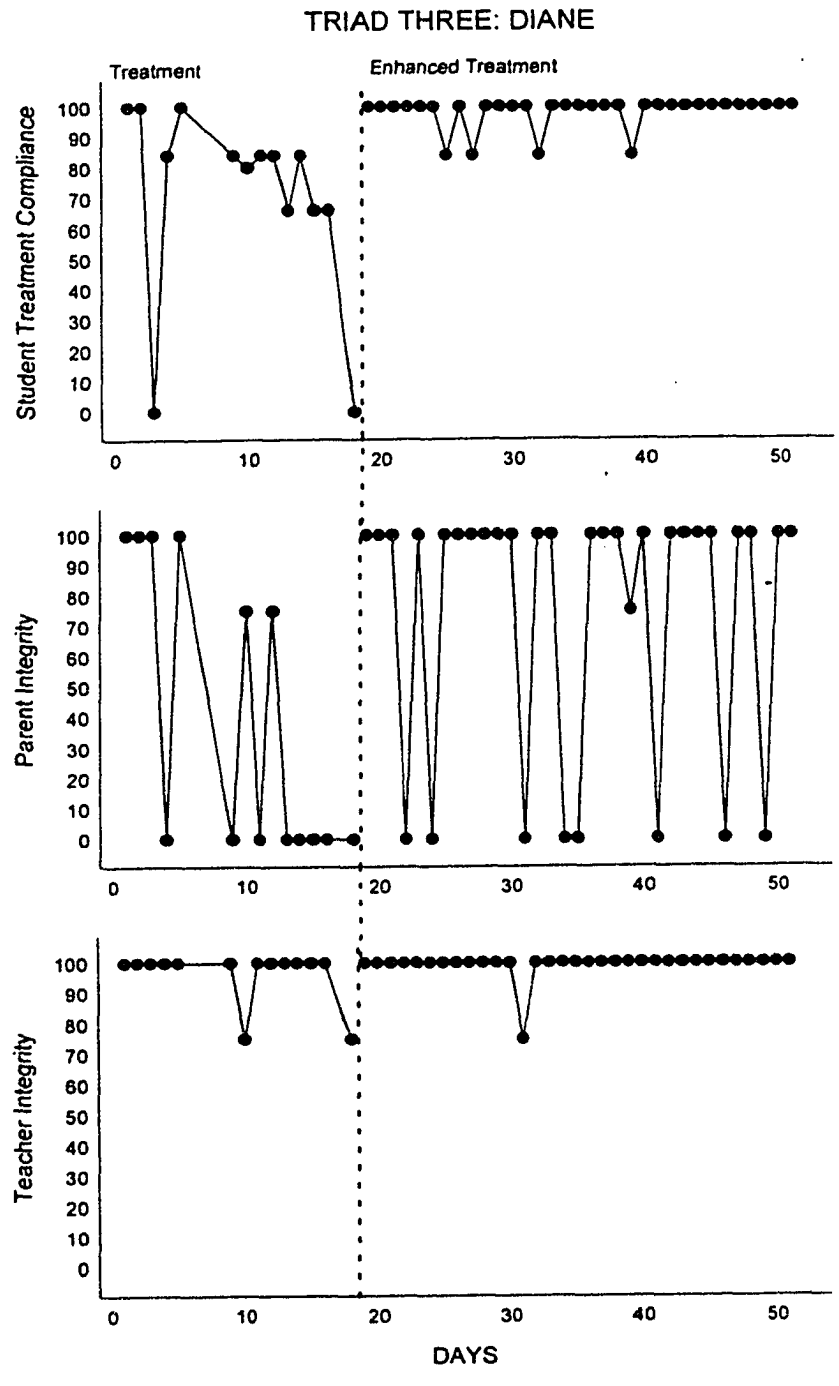

Figure 8: Cohort 1: Triad 3 - Treatment compliance for Diane, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

Table 4

Cohort 1: Average Percent of Parent Treatment Integrity Across Phases		
Name	Treatment	Enhanced Treatment
Zena's Mother	33%	82%
Cassandra's Mother	46%	86%
Diane's Mother	39%	75%

Data presented in Figure 9 represent consecutive intervention days, except holidays, weekends, and days when the student was absent from the target class. As may be seen, although the mothers of Zena, Cassandra and, Diane all implemented the intervention some portion of the time, overall implementation of the intervention steps by each parent was variable during the treatment phase (see Table 4).

During enhanced treatment when performance feedback and incentives was begun, the treatment integrity of Zena's mother immediately increased to 100% (see Figures 6 and 9). This parent's enhanced treatment data (M= 82%) show a substantial increase over the initial treatment data (M=33%).

Similarly, the data for Cassandra's mother show that her treatment integrity immediately increased to 100% on the first day performance feedback plus incentives was used. Her average intervention usage during treatment was moderate (M=46%) but increased substantially during the time that the enhanced treatment was used (M=86%) (see Figures 7 and 9).

Data for Diane's mother too, were variable and showed low usage of the intervention during treatment (M=39%). On the first day that the enhanced treatment was used, like Zena's and Cassandra's mother, Diane's mother's treatment integrity immediately increased to 100%. After some variability during enhanced treatment, her

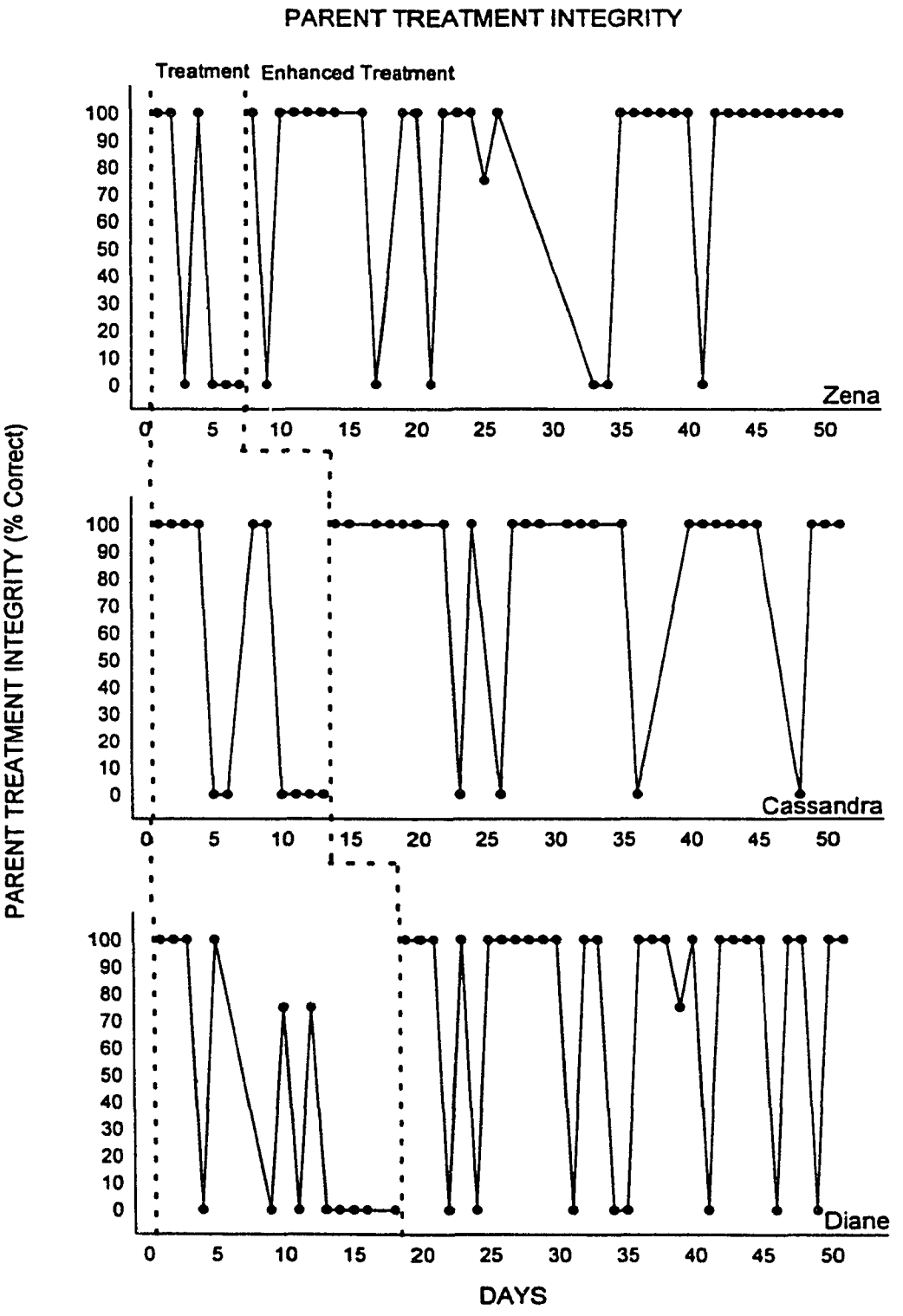

Figure 9: Cohort 1: Parent treatment integrity expressed as percent of treatment steps completed correctly by parents in Cohort 1.

performance then stabilized at 100% for the last 2 days of enhanced treatment (M=75%) (see Figures 8 and 9).

Student Performance

Academic Performance. Data in Table 5 summarize average percent correct on student daily academic assignments across each phase of the study. Figure 10 depicts average percent correct on student daily academic assignments as well as percent of student treatment compliance. For Zena, her pretreatment academic average of 57% increased to 70% over the course of the study. Cassandra's pretreatment academic average increased from 59% correct to 84% correct. The pretreatment academic average of Diane increased from 38% correct to 90% correct over the course of the study (see Figure 10).

Table 5

Cohort 1: Student Academic Performance - Average Percent Correct By Phases			
Name	Pre-Treatment	Treatment	Enhanced Treatment
Zena	57%	61%	70%
Cassandra	59%	69%	84%
Diane	38%	63%	90%

Absences. Rate measures were used to compare students' average pretreatment rate of absences per week from the target class, to their average treatment rate of absences per week from the target class. The pretreatment rate of absences was calculated by dividing the absolute number of absences of each student by the 20.2 week period that preceded onset of treatment, while the treatment rate of absences was calculated by dividing each student's absolute number of absences by the 10.2 week treatment period that followed.

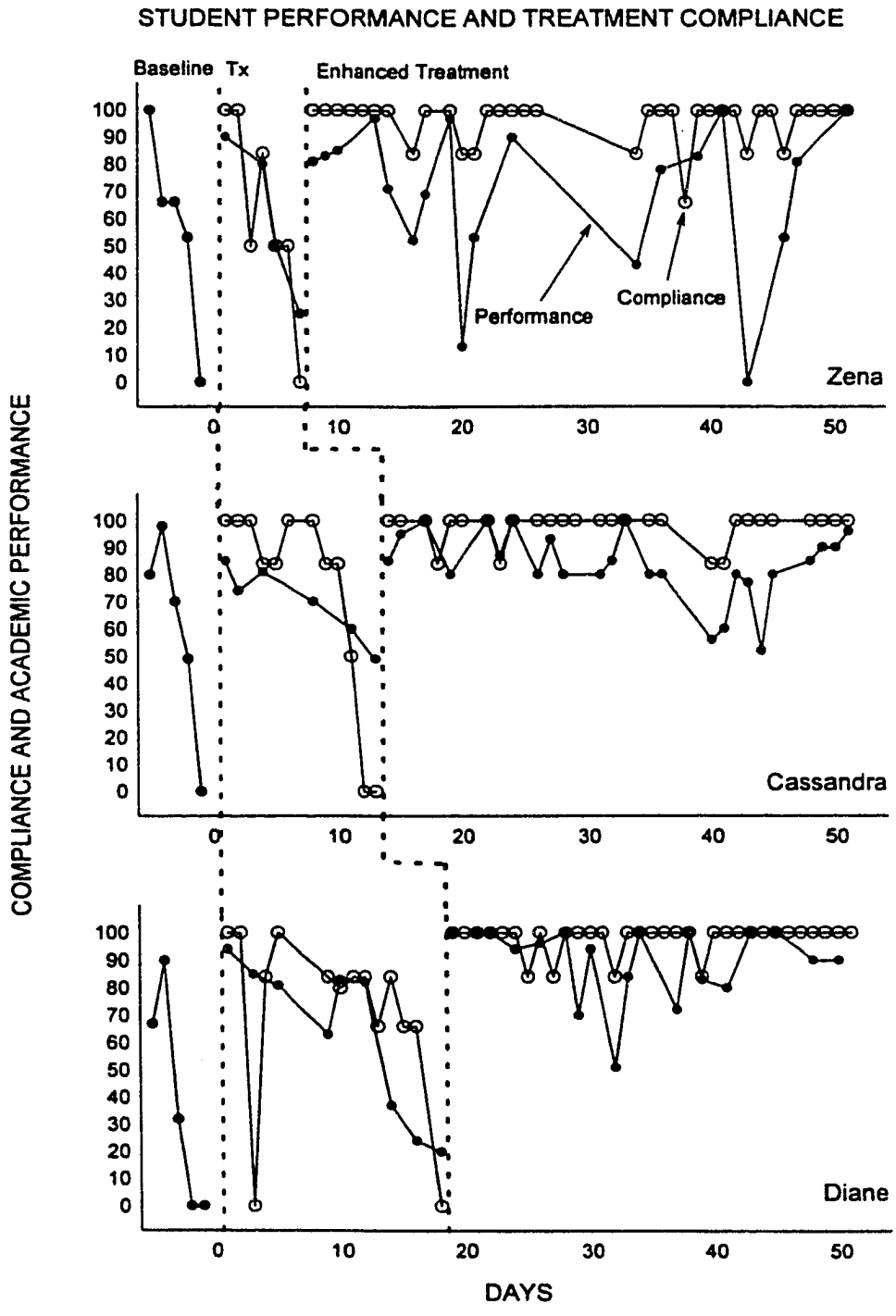

Figure 10: Cohort 1: Student academic performance and treatment compliance expressed as percent correct for the three students in Cohort 1.

The data in Table 6 reflect the average weekly rate of absences to the target class of the three teen mothers in Cohort 1. Zena's average pretreatment absence rate represented a rate of accumulation of 1.6 absences per week. During treatment, this average rate was reduced to 0.9 absences per week. This represents an average absence rate decrease of 44%. Cassandra's average post-treatment absence rate of 1 absence per week actually reflected an increase over her pretreatment average absence rate which was 0.7 absences per week. This is a 58% increase in Cassandra's average rate of absences. Diane's average rate of accumulation of absences was reduced from to 0.6 per week prior to treatment to 0.3 absences per week over the course of the study. This represents a 50% decrease in Diane's average rate of absences (see Table 6).

Table 6

Cohort 1: Average Weekly Rate of Absences From the Target Class		
Name	Pre-Treatment Rate	Post-Treatment Rate
Zena	1.6	0.9
Cassandra	0.7	1.0
Diane	0.6	0.3

Treatment Compliance. The open circles of Figure 10 show the treatment compliance of all 3 students who participated in Cohort 1. Table 7 shows the average percent of student treatment compliance across phases. It may be seen that for the 3 teen mothers in Cohort 1, treatment compliance was observed to increase when the enhanced treatment phase of the study began. For Zena, treatment compliance increased from baseline levels of 62% treatment compliance to enhanced treatment levels of 96% treatment compliance (see Figures 6 and 10). For Cassandra, treatment compliance during baseline averaged 74%. During enhanced treatment, when Cassandra's mother, was receiving performance feedback and both mother and daughter were receiving cash

incentives, Cassandra's treatment compliance average increased to 98% (see Figures 7 and 10). For Diane, results in the same direction were obtained (see Figures 8 and 10) since her baseline treatment compliance average of 67% increased to an enhanced treatment average of 98% compliance with the intervention.

Table 7

Cohort 1: Average Percent of Student Treatment Compliance Across Phases		
Name	Treatment	Enhanced Treatment
Zena	62%	96%
Cassandra	74%	98%
Diane	67%	98%

Disciplinary Referrals. Rate measures were used to compare students' average pretreatment rate of disciplinary referrals per week, to their average treatment rate of disciplinary referrals per week. The pretreatment rate of disciplinary referrals was calculated by dividing the absolute number of referrals of each student by the 20.2 weeks of the pretreatment period, while the treatment rate of referrals was calculated by dividing the absolute number of referrals by the 10.2 week treatment phase which followed.

Table 8 shows the average weekly rate of disciplinary referrals accumulated by students in Cohort 1 prior to and at the end of the study. It may be seen that Zena, Cassandra and Diane all reduced their average weekly rates of disciplinary referrals from pretreatment levels of 0.1 per week to 0 per week, since none of them accumulated any additional referrals (see Table 8).

Table 8

Cohort 1: Average Weekly Rate of Accumulated Disciplinary Referrals		
Name	Pre-Treatment Rate	Post-Treatment Rate
Zena	0.1	0
Cassandra	0.1	0
Diane	0.1	0

COHORT 2

Treatment Integrity

Teachers. Figure 11 and Table 9 provide information regarding levels of teacher treatment integrity for the teachers in Cohort 2. In this study, treatment integrity for all teachers remained uniformly high and did not go below the designated cut-off score of 75% (Cohort 2 overall M=98%)); therefore, as in Cohort 1 above, the teachers of Cohort 2 did not enter the enhanced treatment phase (see Figure 11 and Table 9).

Table 9

Cohort 2: Average Percent of Teacher Treatment Integrity		
Name	Triad Number	Average Percent
Suzanna's Teacher	1	100%
Eileen's Teacher	2	97%
Lacreasha's Teacher	3	99%

As may be seen from Table 9, Suzanna's teacher maintained a treatment integrity average of 100%, while the treatment integrity averages of Eileen's and Lacreasha's teachers were 97% and 99%, respectively. Teacher treatment integrity data may also be seen in the graphs of the triads of teachers, parents and students who participated in Cohort 2 (Figures 12, 13, and 14).

Parents. Treatment integrity data for parents in Cohort 2 are presented in Figure 15 and in Table 10. These data represent consecutive intervention days, except holidays, weekends, and days when the student was absent from the target class. Overall implementation of the intervention steps by the parents was variable during the treatment phase. Because treatment integrity for parents was characterized by instability during this phase, enhanced treatment was implemented with 2 of the parents in this Cohort to boost their participation in the intervention. Although treatment integrity data for the third

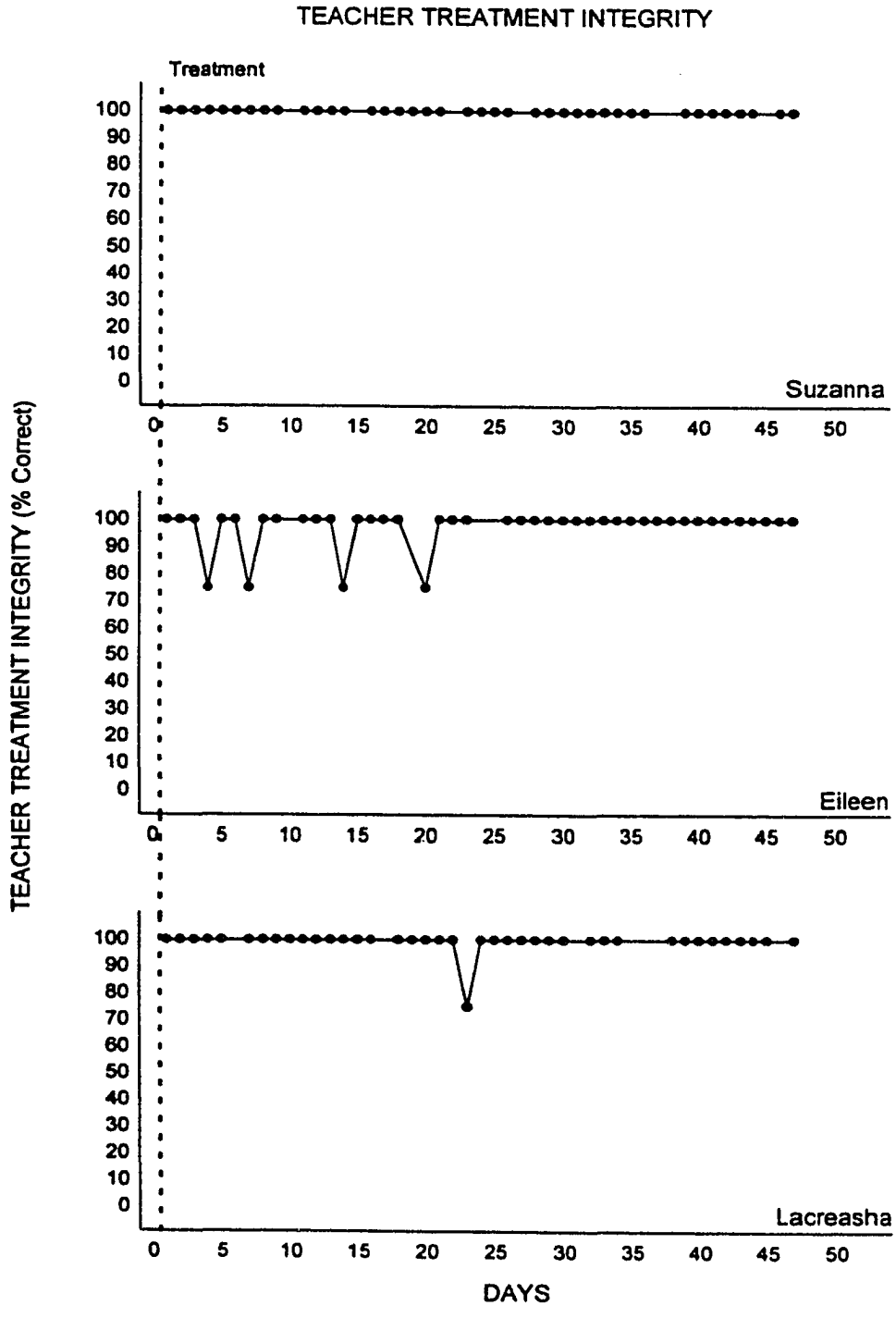

Figure 11: Cohort 2: Teacher treatment integrity expressed as percent of treatment steps completed correctly by teachers in Cohort 2.

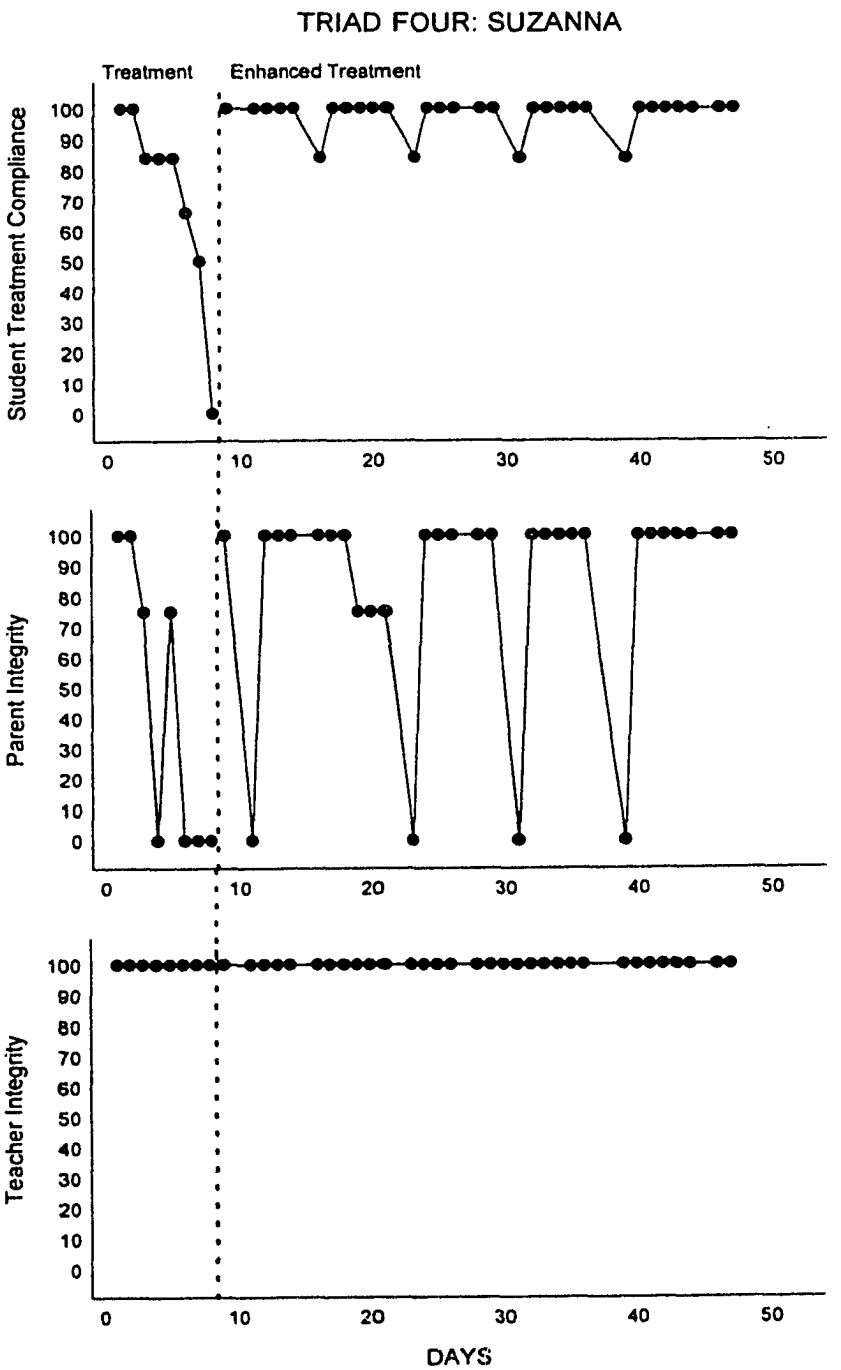

Figure 12: Cohort 2: Triad 4 - Treatment compliance for Suzanna, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

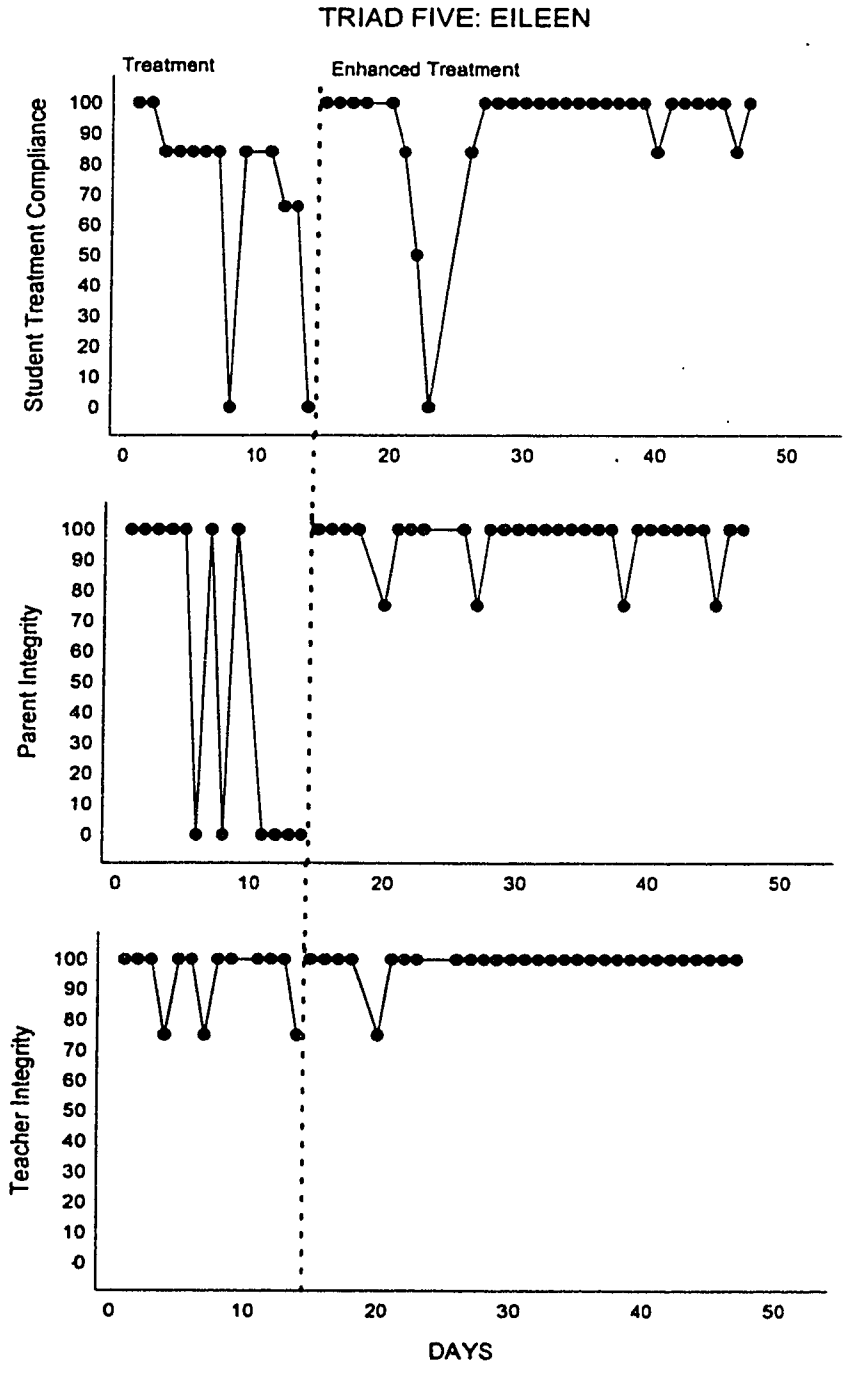

Figure 13: Cohort 2: Triad 5 - Treatment compliance for Eileen, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

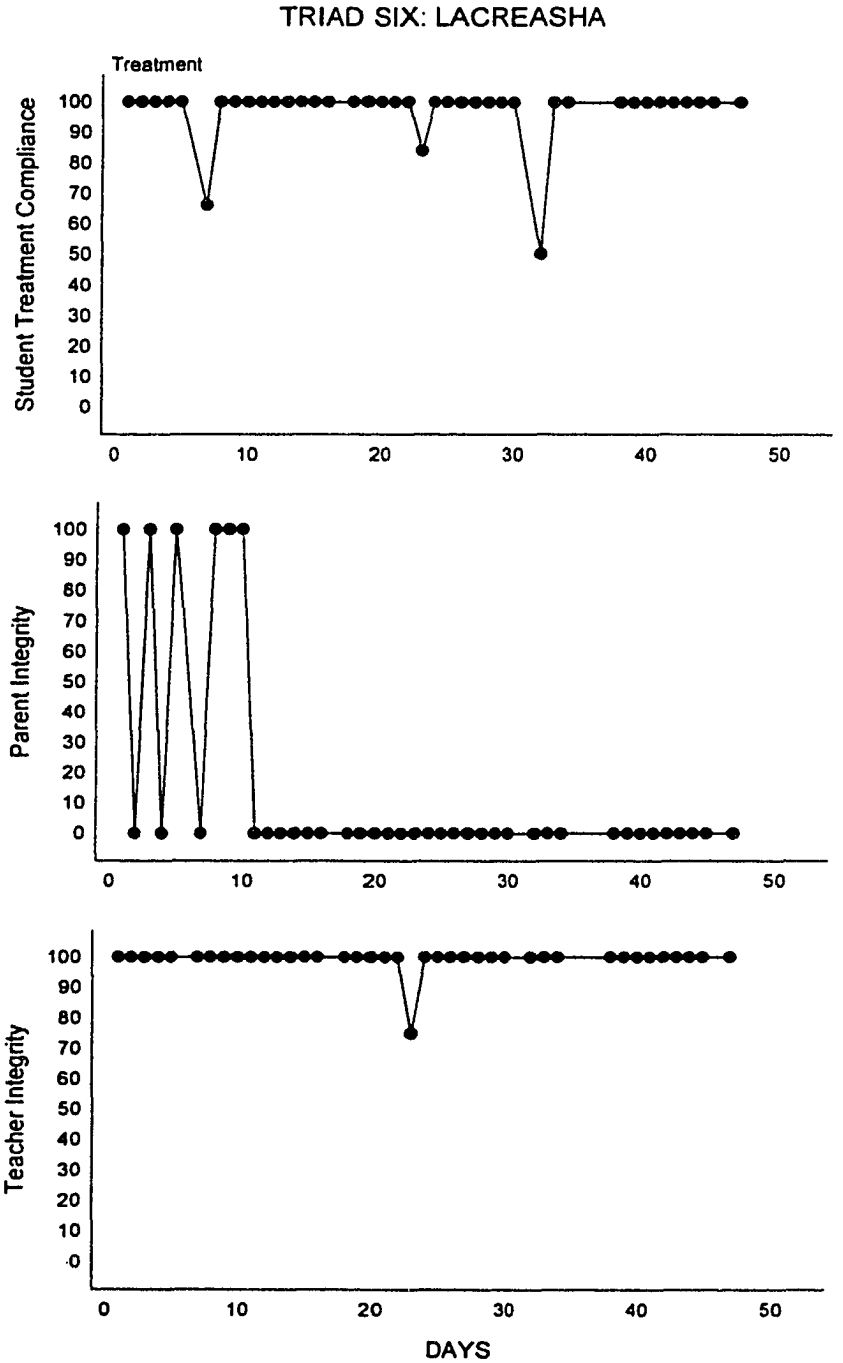

Figure 14: Cohort 2: Triad 6 - Treatment compliance for Lacreasha, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

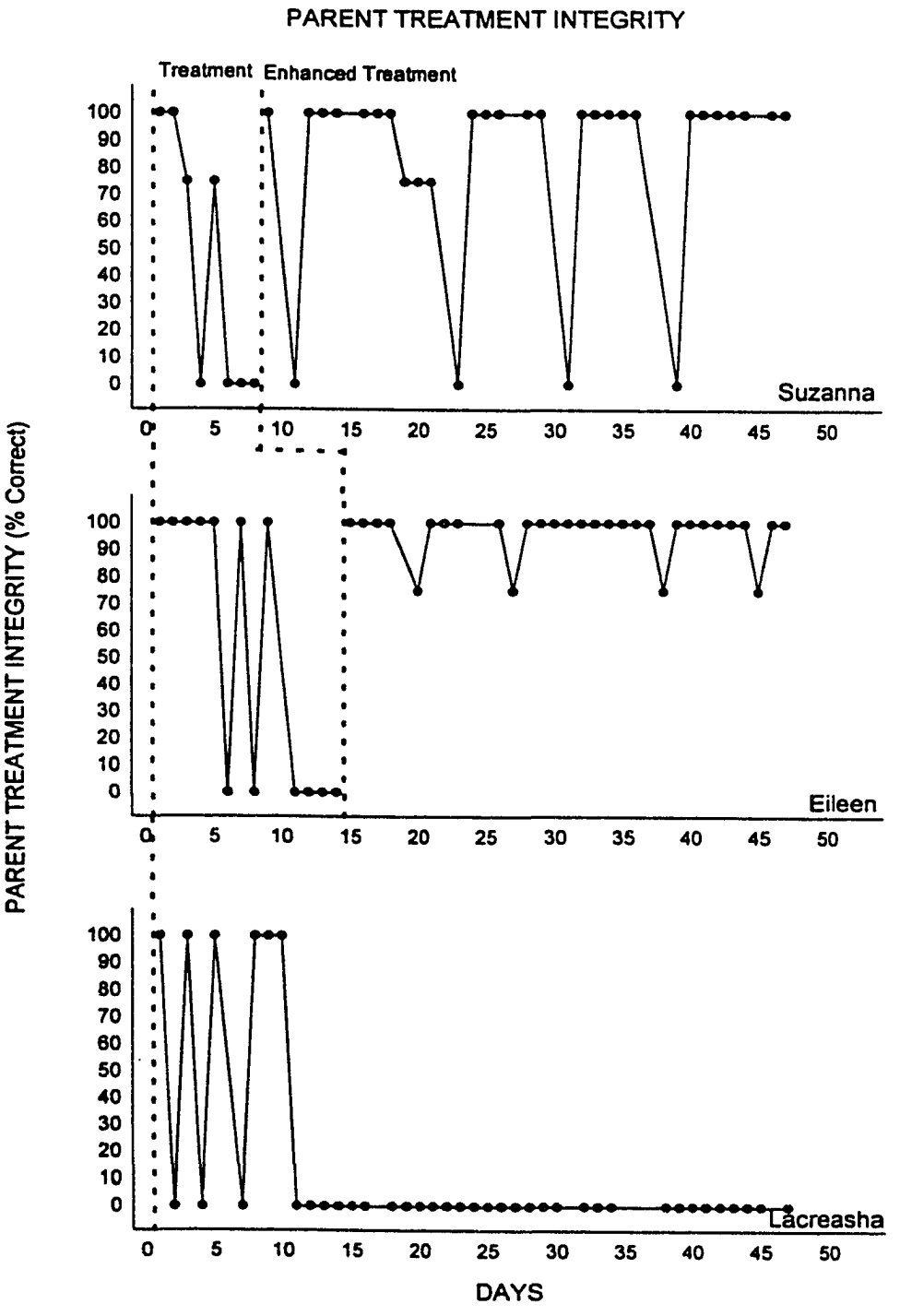

Figure 15: Cohort 2: Parent treatment integrity expressed as percent of treatment steps completed correctly by parents in Cohort 2.

parent, Lacreasha's mother, were also unstable, this parent did not enter the enhanced treatment phase, and therefore did not receive performance feedback or incentives at any time during the study. This was because Lacreasha's treatment compliance scores and academic performance scores remained consistently at or above the preestablished criterion levels of 80% or higher (see Figures 14 and 15).

Table 10

Cohort 2: Average Percent of Parent Treatment Integrity Across Phases		
Name	Treatment	Enhanced Treatment
Suzanna's Mother	44%	85%
Eileen's Mother	61%	96%
Lacreasha's Mother	15%	___

For the two parents in enhanced treatment, who received the combination of incentives, and daily telephone and weekly face to face performance feedback, this treatment produced increases in treatment integrity for both (see Figure 15). With the implementation of performance feedback to Suzanna's mother, her treatment integrity immediately increased to 100%. The enhanced treatment data for this parent (M=85%) show a substantial increase over the initial treatment data (M=44%) (see Figure 12 and Table 10). Similarly, data for Eileen's mother show that her treatment integrity immediately increased to 100% on the first day that the enhanced treatment was used. Her average baseline intervention usage was moderate (M=61%) but increased when enhanced treatment was introduced (M=96%) (see Figures 13 and 15). As was previously mentioned, Lacreasha's mother never entered the enhanced treatment phase of the study because Lacreasha maintained acceptable levels of academic performance and treatment compliance throughout the study, despite the fact that her mother's treatment integrity over the course of the study averaged only 15% (see Figures 14 and 15).

Student Performance

Academic Performance. The data in Table 11 summarize average percent correct on student academic assignments, across all phases of the study. Figure 16 depicts average percent correct on student academic assignments as well as percent of student treatment compliance. For Suzanna, her pretreatment academic average of 62% increased to 90% over the course of the study. The pretreatment academic average of Eileen increased from 48% correct to 88% correct during the final phase of the study, while Lacreasha's pretreatment academic average increased from 29% correct to 87% correct by the end of the study (see Figure 16).

Table 11

Cohort 2: Student Academic Performance - Average Percent Correct By Phases

Name	Pre-Treatment	Treatment	Enhanced Treatment
Suzanna	62%	58%	90%
Eileen	48%	69%	88%
Lacreasha	29%	87%	----

Although Lacreasha's parent did not enter the enhanced treatment phase of the study, and therefore did not receive either performance feedback or incentives (see Figure 14), the increase in Lacreasha's pretreatment academic average from 29% to 87% over the course of the intervention, suggests that simply monitoring her performance was in itself a treatment sufficient to produce this substantial change in her academic performance.

Absences. Rate measures were used to compare students' average pretreatment rate of absences per week from the target class, to their average treatment rate of absences per week from the target class. The pretreatment rate of absences was calculated by dividing the absolute number of absences of each student by the 21 week period that preceded onset of treatment, while the treatment rate of absences was calculated by

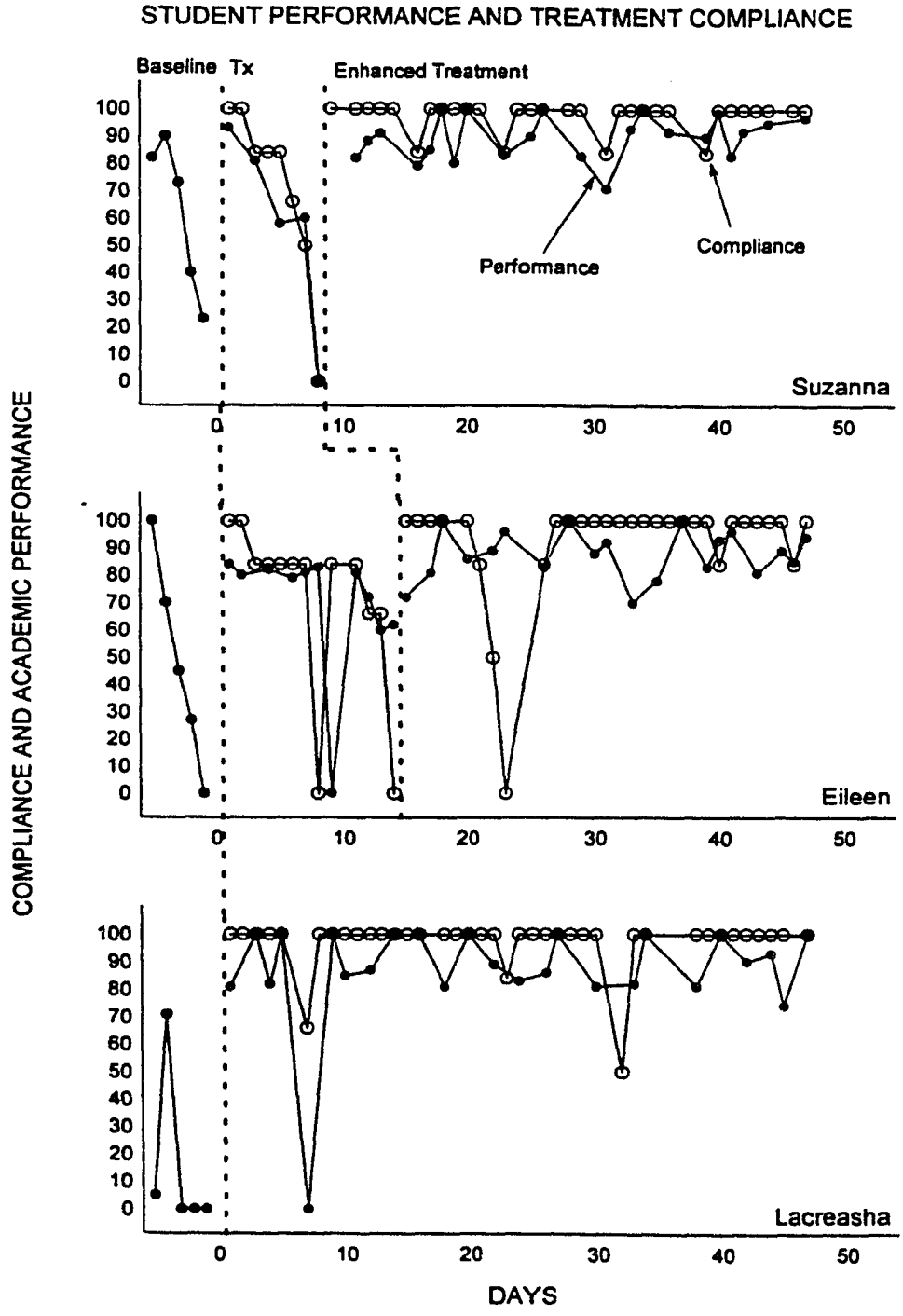

Figure 16: Cohort 2: Student academic performance and treatment compliance expressed as percent correct for the three students in Cohort 2.

dividing each student's absolute number of absences by the 9.4 week treatment period which followed.

The data in Table 12 show the average weekly rate of accumulation of absences to the target class, pre-treatment and post-treatment, for each of the students in Cohort 2. For Suzanna, her average rate of 1.1 absences accumulated per week was reduced to an average rate of 0.7 absences accumulated per week. This is a 36% decrease in her average weekly absence rate. Eileen reduced her average weekly rate of absences from 0.9 per week to 0.3 per week, for a 67% decrease in her average weekly absence rate. Lacreasha's average rate of accumulation of 1.0 absence per week was reduced to 0.4 absences per week, representing a 60% decrease in her average weekly absence rate (see Table 12).

Table 12

Cohort 2: Average Weekly Rate of Absences From the Target Class		
Name	Pre-Treatment Rate	Post-Treatment Rate
Suzanna	1.1	0.7
Eileen	0.9	0.3
Lacreasha	1.0	0.4

Treatment Compliance. Figure 16 summarizes the treatment compliance and academic performance of the 3 students who participated in Cohort 2. Table 13 depicts the average percent of treatment compliance for each student across phases. During the course of the study, for Suzanna and Eileen, the two students who participated in enhanced treatment, their treatment compliance was observed to increase when this phase of the study began. With the introduction of the treatment package, comprised of performance feedback for the parents plus incentives for both parent and student, Suzanna's treatment compliance increased from baseline levels of 71% to enhanced

treatment levels of 97% (see Figure 12). Eileen's baseline treatment compliance average rose from 70% to 93% (see Figure 13). For Lacreasha, who met criterion levels of academic performance and treatment compliance consistently over the course of the study without the introduction of enhanced treatment, her treatment compliance across the study averaged 97% (see Figure 14).

Table 13

Cohort 2: Average Percent of Student Treatment Compliance Across Phases		
Name	Treatment	Enhanced Treatment
Suzanna	71%	97%
Eileen	70%	93%
Lacreasha	97%	-----

Disciplinary Referrals. Rate measures were used to compare students' average pretreatment rate of disciplinary referrals per week, to their average treatment rate of disciplinary referrals per week. The pretreatment rate of disciplinary referrals per week was calculated by dividing the absolute number of referrals of each student by the 21 weeks of the pretreatment period, while the treatment rate of referrals per week was calculated by dividing the absolute number of referrals by the 9.4 week treatment phase.

Table 14 provides a comparison of the average rate of accumulation of disciplinary referrals per week for the students in Cohort 2, from which it may be seen that all students reduced their rate of accumulation of disciplinary referrals. Suzanna's average rate of accumulation of disciplinary referrals had been 0.1 per week prior to the study. This was reduced to 0. Eileen's average rate of accumulation of disciplinary referrals of 0.5 per week prior to the study, was reduced substantially, to an average rate of 0.1 per week, during the study. Lacreasha's average rate of accumulation of referrals of 0.1 per week prior to the study, was reduced to a rate of 0 referrals per week.

Table 14

Cohort 2: Average Weekly Rate of Accumulated Disciplinary Referrals		
Name	Pre-Treatment Rate	Post-Treatment Rate
Suzanna	0.1	0
Eileen	0.5	0.1
Lacreasha	0.1	0

COHORT 3

Treatment Integrity

Teachers. Figure 17 depicts the integrity with which the teachers in Cohort 3 performed their part of the intervention. Teacher treatment integrity may also be seen in Figures 18, 19 and 20 on the graphs of the triads of teachers, parents and students who participated in this study. Table 15 summarizes the average percent of teacher treatment integrity. As may be seen, because teacher treatment integrity remained consistently high, and did not go below the designated cut-off score of 75% for any of the teachers in this study (overall M=98% for Cohort 3), these teachers did not enter the enhanced treatment phase. For this reason, no performance feedback was provided to them.

Table 15

Cohort 3: Average Percent of Teacher Treatment Integrity		
Name	Triad Number	Average Percent
Pamela's Teacher	Triad 1	98%
Karen's Teacher	Triad 2	97%
Therese's Teacher	Triad 3	100%

Parents. Figure 21 graphically represents the integrity with which the parents of the students in Cohort 3 performed their part of the intervention. Table 16 compares the average percent of parent treatment integrity across phases of the study. Treatment integrity for Cohort 3 parents was variable during the treatment phase, so enhanced treatment was implemented with the mothers of Pamela, Karen, and Therese to boost participation in the intervention. This treatment package of daily telephone and weekly face to face performance feedback, combined with daily and weekly cash incentives, resulted in increases in treatment integrity for all 3 parents (see Figure 21).

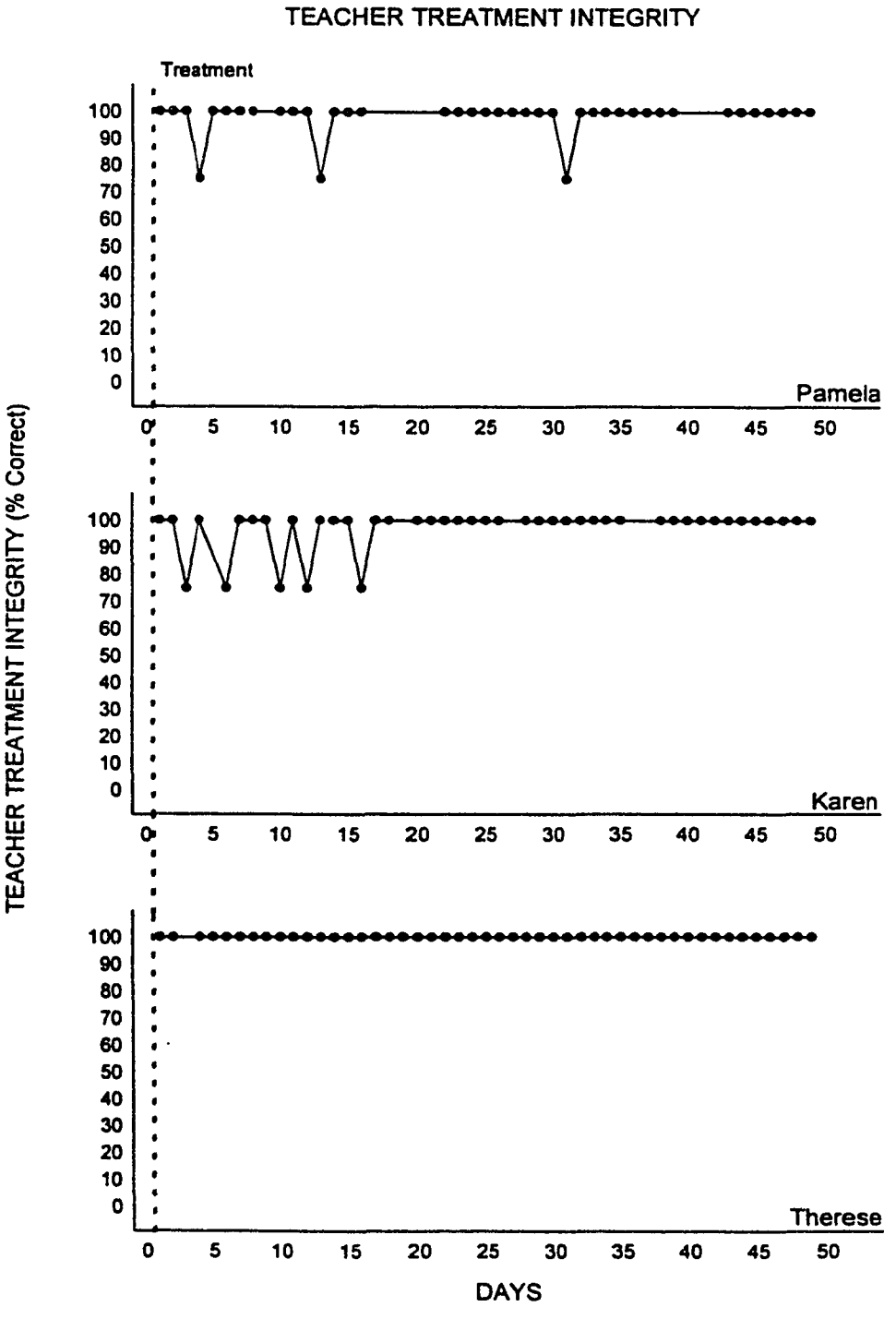

Figure 17: Cohort 3: Teacher treatment integrity expressed as percent of treatment steps completed correctly by teachers in Cohort 3.

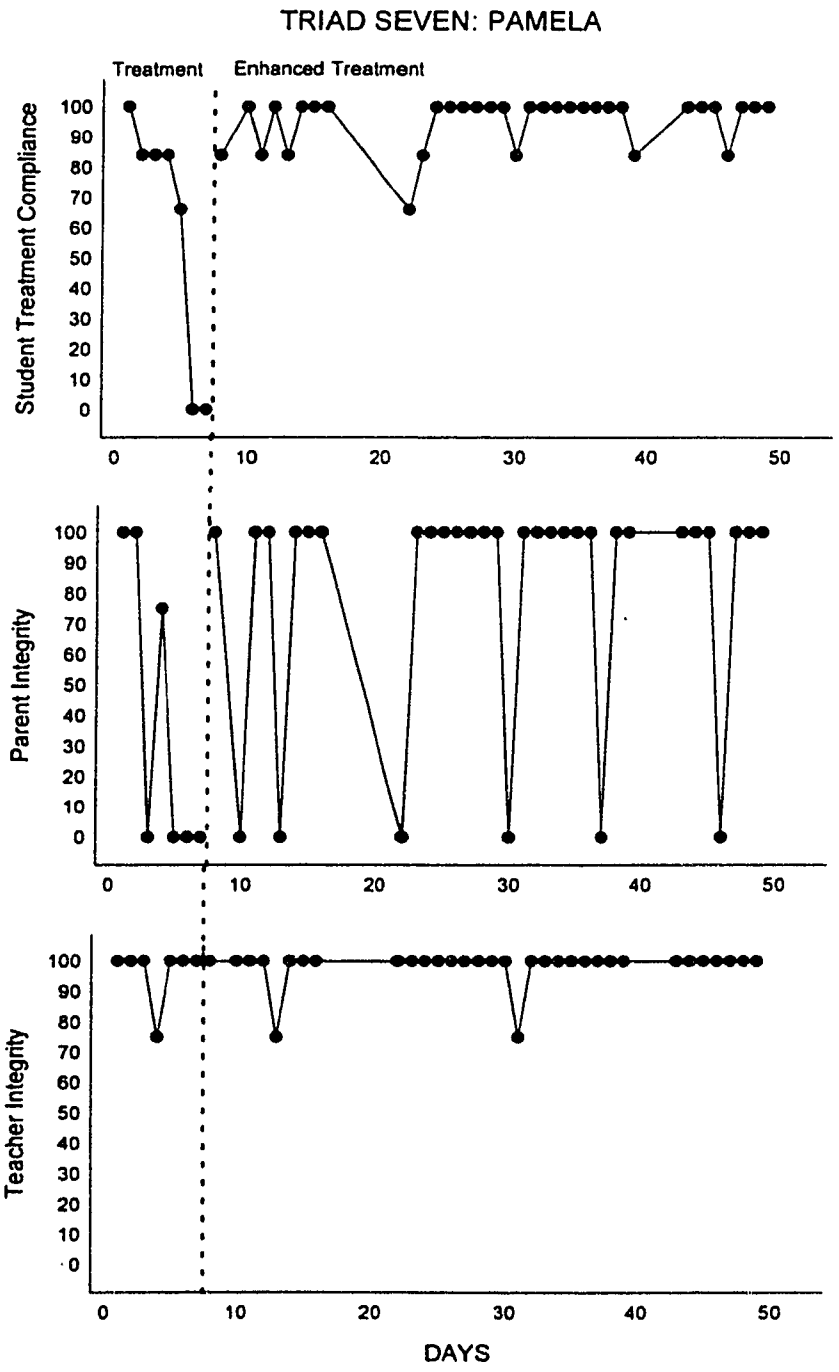

Figure 18: Cohort 3: Triad 7 - Treatment compliance for Pamela, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

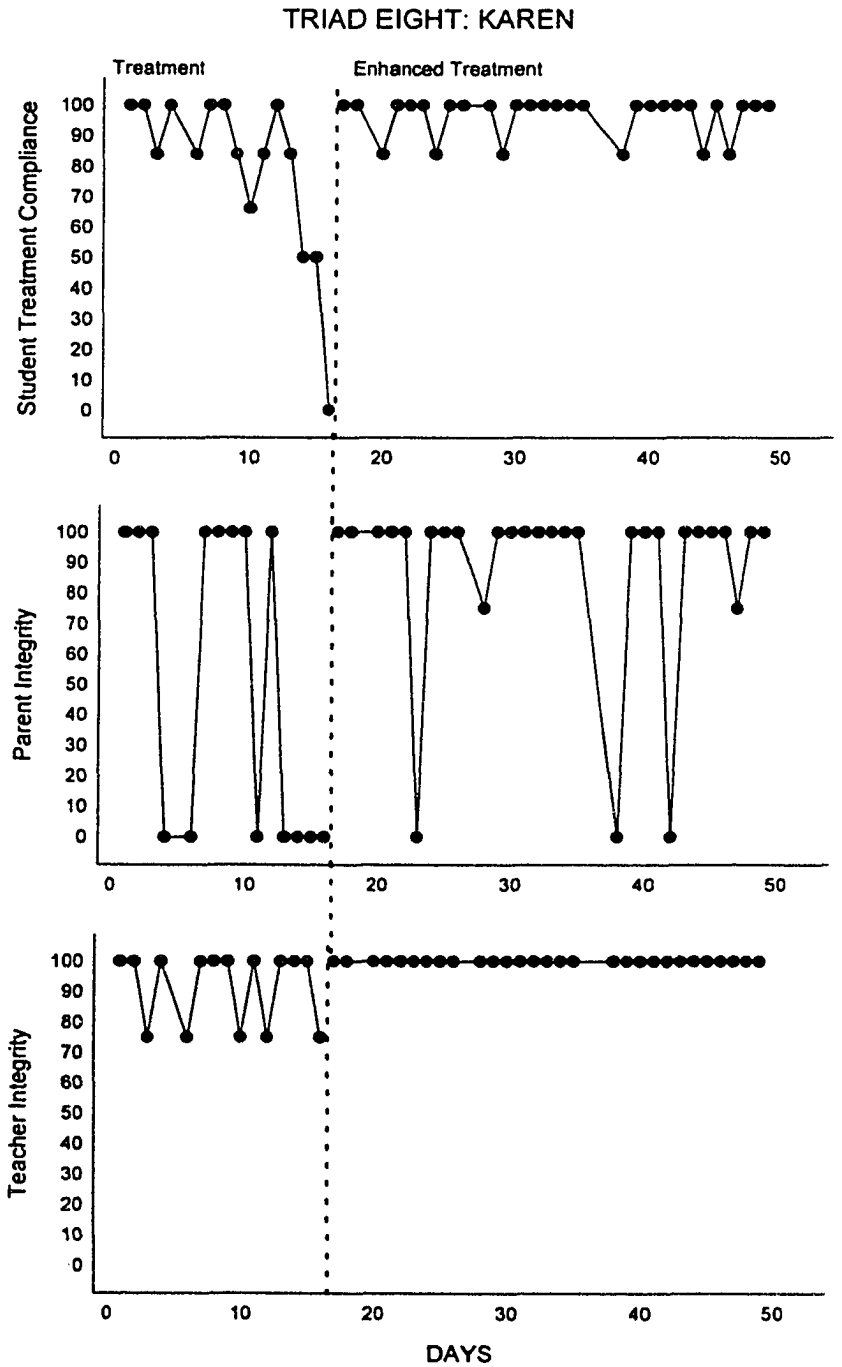

Figure 19: Cohort 3: Triad 8 - Treatment compliance for Karen, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

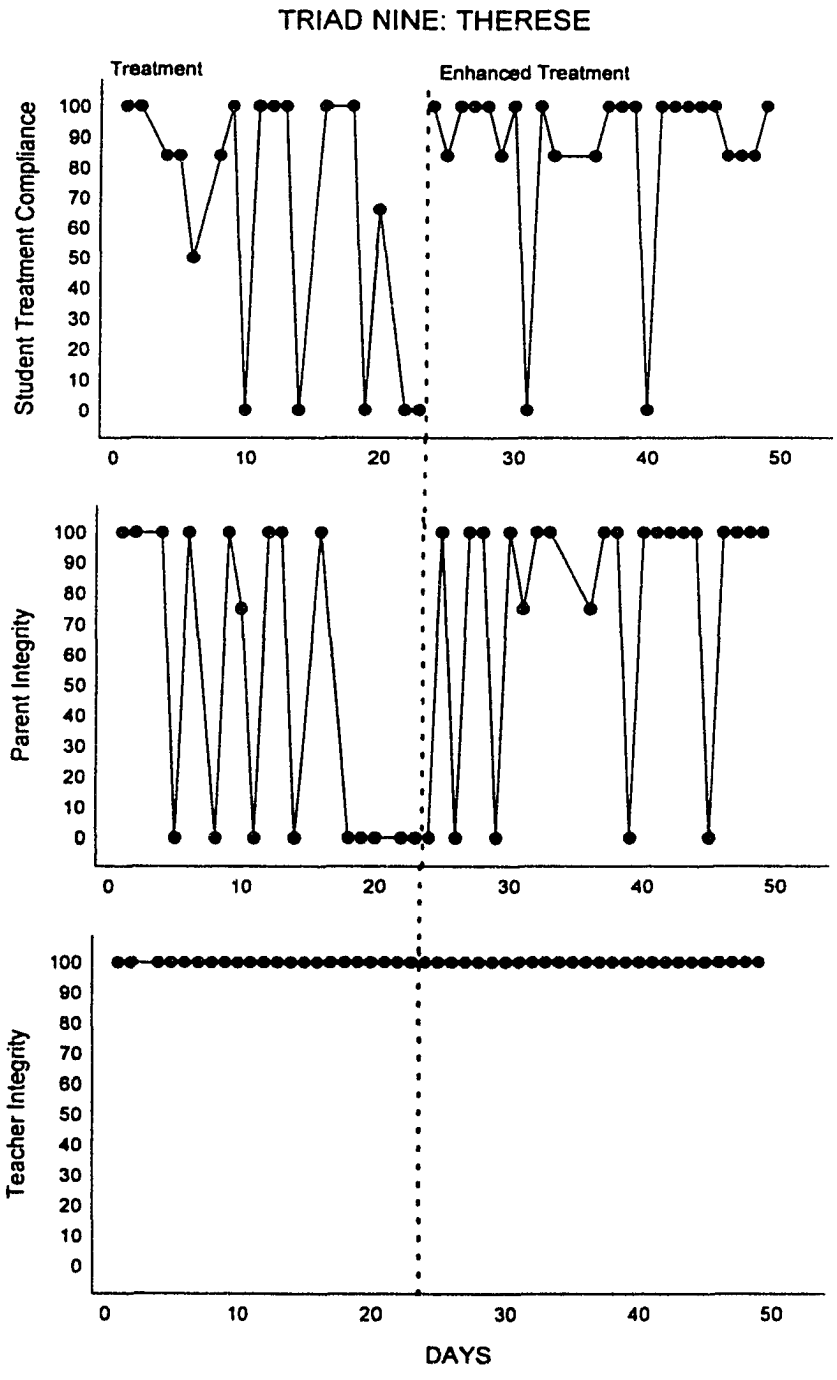

Figure 20: Cohort 3: Triad 9 - Treatment compliance for Therese, and treatment integrity for her parent and teacher expressed as percent of treatment steps completed correctly.

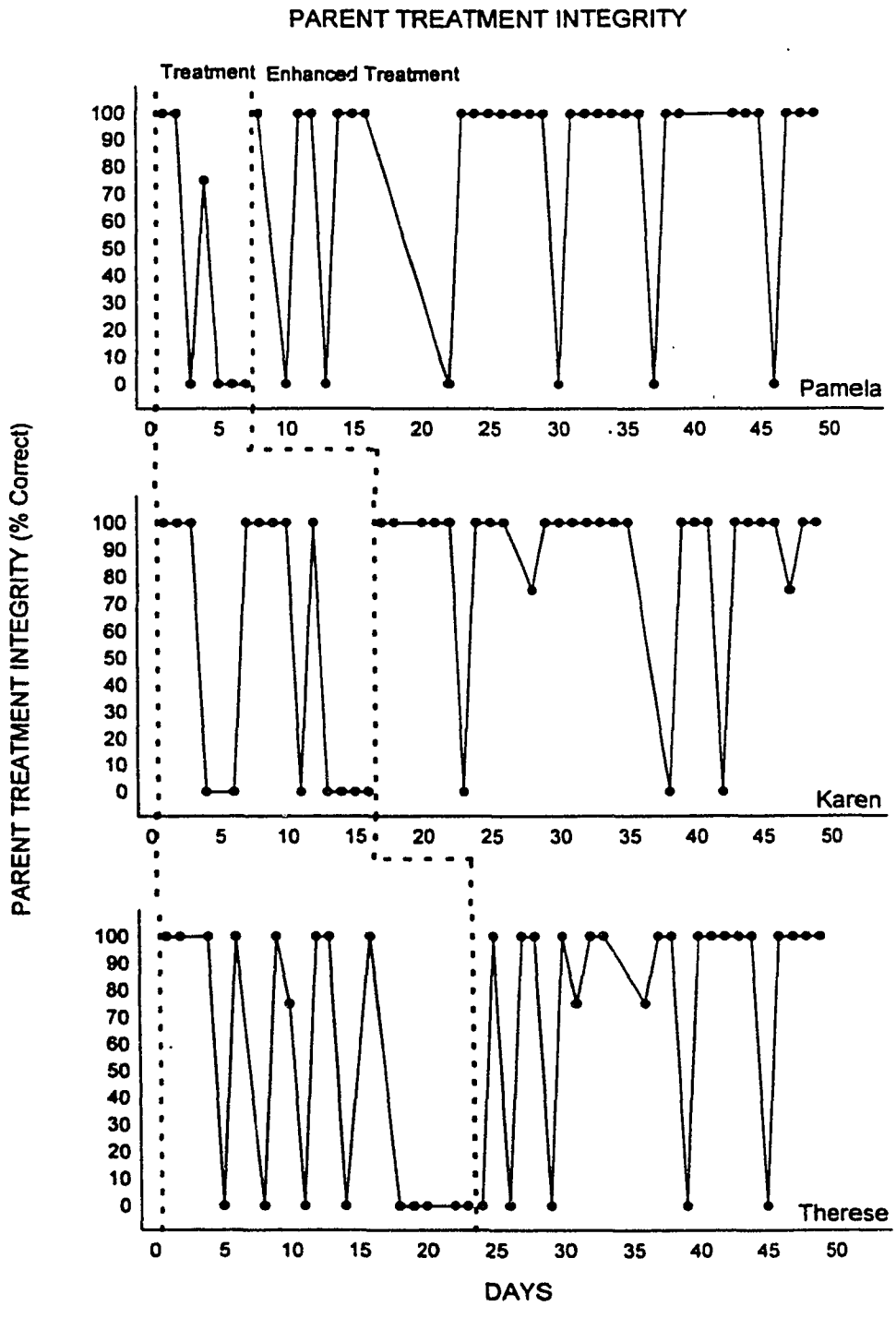

Figure 21: Cohort 3: Parent treatment integrity expressed as percent of treatment steps completed correctly by parents in Cohort 3.

Data presented in Figure 21 represent consecutive intervention days, except holidays, weekends, and days when the student was absent from the target class. As may be seen, the mothers of Pamela, Karen and Therese all implemented the intervention some portion of the time; however, overall implementation of the intervention steps by each parent was variable during the treatment phase (see Table 16).

Table 16

Cohort 3: Average Percent of Parent Treatment Integrity Across Phases		
Name	Treatment	Enhanced Treatment
Pamela's Mother	39%	81%
Karen's Mother	53%	87%
Therese's Mother	51%	77%

During enhanced treatment when performance feedback with incentives was begun, the treatment integrity of Pamela's mother immediately increased to 100% (see Figure 18). The enhanced treatment data for this mother (M=81%) show a substantial increase over her initial treatment data (M=39%).

Similarly, data for Karen's mother show that her treatment integrity immediately increased to 100% on the first day that the enhanced treatment phase was introduced. Her average baseline intervention usage was moderate during the treatment phase (M=53%), but increased during enhanced treatment (M=87%) when performance feedback plus incentives was given (see Figure 19).

Data for the mother of Therese were highly variable during the treatment phase (M=51). Unlike the other 2 parents in this study whose treatment integrity immediately increased to 100% on the first day of enhanced treatment, the effect of performance feedback for this mother was delayed. The treatment integrity of Therese's mother was 0% on the first day that performance feedback was given. After the second performance

feedback session, it then increased to 100%. After extensive variability during enhanced treatment, the performance of Therese's mother finally became stable at 100% during the final days of enhanced treatment (M=77%) (see Figure 20).

Student Performance

Academic Performance. Figure 22 depicts graphically the academic performance of the students in Cohort 3. It also shows students' treatment compliance. The data in Table 17 represent a summary of the average percent correct on student daily academic assignments across phases of the study. For Pamela, her pretreatment academic average of 45% increased to 76% over the course of the study. Karen's pretreatment academic average increased substantially, from 33% correct to 78% correct. The pretreatment academic average of Therese increased from 57% correct, to 73% correct while the study was in progress (see Table 17 and Figure 22).

Table 17

Cohort 3: Student Academic Performance - Average Percent Correct By Phases			
Name	Baseline	Treatment	Enhanced Treatment
Pamela	45%	50%	76%
Karen	33%	70%	78%
Therese	57%	62%	73%

Absences. Rate measures were used to compare students' average pretreatment rate of absences per week from the target class, to their average treatment rate of absences per week from the target class. The pretreatment average rate of absences per week was calculated by dividing the absolute number of absences of each student by the 20.6 week period that preceded onset of treatment, while the treatment average rate of absences per week was calculated by dividing each student's absolute number of absences by the 9.8 week treatment period.

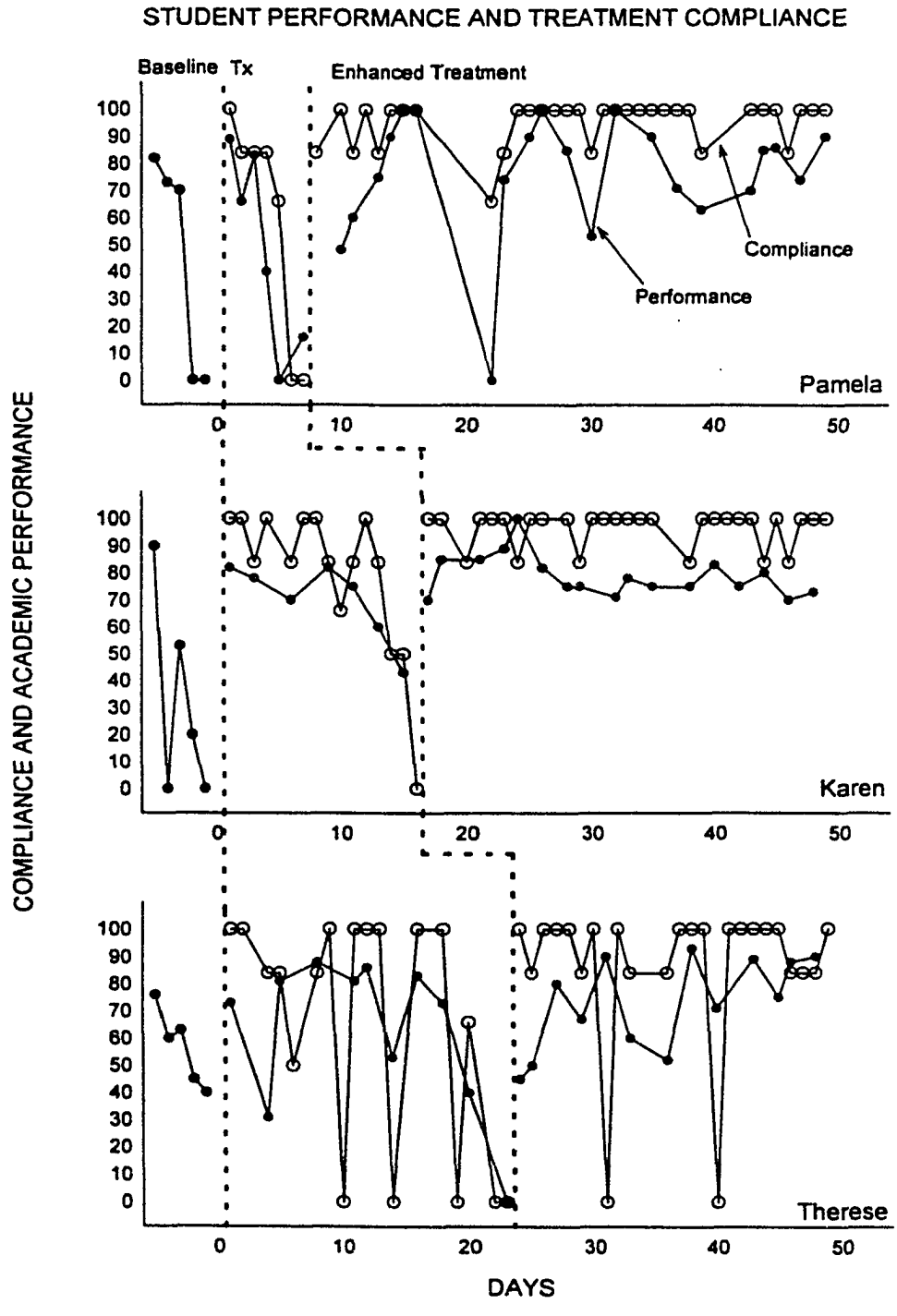

Figure 22: Cohort 3: Student academic performance and treatment compliance expressed as percent correct for the three students in Cohort 3.

The data in Table 18 reflect the average weekly rate of absences from the target class for each of the students in Cohort 3. Table 18 compares each student's pretreatment average weekly rate of absence accumulation to the average weekly rate of absences accumulated by each student during the course of the study. Pamela's average weekly rate of absences prior to treatment was .5 absences per week. This number was unchanged during treatment, remaining at .5 absences per week. Karen decreased her average rate of absences from .9 per week to .4 per week, for a substantial 56% reduction in rate of absence accumulation. Therese's baseline average rate of .6 absences per week was reduced to an average rate of .5 absences per week over the course of the study. This represents a 17% decrease in her average weekly rate of accumulation of absences.

Table 18

Cohort 3: Average Weekly Rate of Absences From the Target Class		
Name	Pre-Treatment Rate	Post-Treatment Rate
Pamela	0.5	0.5
Karen	0.9	0.4
Therese	0.6	0.5

Treatment Compliance. Figure 22 graphically summarizes the treatment compliance of each of the students in Cohort 3. Student treatment compliance may also be seen in the triad graphs (Figures 18, 19 and 20) of teachers, parents and students who took part in this study. Table 19 compares the average percent of treatment compliance of the students across phases of the study. Over the course of the study, student treatment compliance levels were observed to increase. For Pamela, treatment compliance increased from baseline levels of 59% compliance to enhanced treatment levels of 95% treatment compliance (see Figure 18). For Karen (see Figure 19), her treatment compliance during baseline averaged 79%, but during enhanced treatment, her treatment

compliance average increased to 96%. For Therese, (see Figure 20) her baseline average of treatment compliance at 68% increased to an enhanced treatment average of 87% compliance.

Table 19

Cohort 3: Average Percent of Student Treatment Compliance Across Phases		
Name	Treatment	Enhanced Treatment
Pamela	59%	95%
Karen	79%	96%
Therese	68%	87%

Disciplinary Referrals. Rate measures were used to compare students' average pretreatment rate of disciplinary referrals per week, to their average treatment rate of disciplinary referrals per week. The average pretreatment rate of disciplinary referrals per week was calculated by dividing the absolute number of referrals of each student by the 20.6 weeks of the pretreatment period, while the average treatment rate of disciplinary referrals per week was calculated by dividing the absolute number of referrals by the 9.8 week treatment period.

Table 20 provides a comparison of the average weekly rate of accumulation of disciplinary referrals collected by Pamela, Karen and Therese both prior to and at the end of the study. For Pamela, her average weekly rate of accumulation of disciplinary referrals actually increased from 0.1 per week to 0.3 per week. Karen's average weekly rate of accumulating disciplinary referrals decreased from 0.1 referral per week to 0 referrals per week. Like Pamela, Therese's average rate of disciplinary referrals also increased substantially from an average of 0.2 per week to 0.3 per week.

Table 20

Cohort 3: Average Weekly Rate of Accumulated Disciplinary Referrals		
Name	Pre-Treatment Rate	Post-Treatment Rate
Pamela	0.1	0.3
Karen	0.1	0
Therese	0.2	0.3

DISCUSSION

This study focused on finding a solution for the problems of low academic achievement, poor school attendance and school behavior problems of minority teenage mothers. A second focus of the study was the effort to design a method to improve low levels of treatment integrity by the agents responsible for treatment, should low levels occur. Walker et al. (1995) proposed that interventions for students such as those who participated in this study, should be comprehensive, intense, of long duration and implemented with fidelity. This study represented an attempt to design a treatment incorporating these features.

Most previous studies involving school difficulties such as those of the teenage mothers in this study, have attacked the problem with a single focus (i.e., one treatment agent working in one environment; Webster-Stratton, 1993) such as a teacher working to remediate academic problems, the school disciplinarian working to eliminate disruptive behavior, or a truant officer attacking the problem of school absence. This study used a comprehensive treatment approach involving multiple foci (three treatment agents working *together* across two environments, the home and the school, to solve several school-related problems). This is in keeping with the recommendations of Kelley (1990), Patterson et al. (1992), Walker et al. (1995) and Webster-Stratton (1993), who emphasized that treatments involving school-home partnerships are more likely to be successful than those treatments which involve only one of these settings. This school-home partnership approach is more successful because enhanced treatment strength is obtained by insuring child monitoring and accountability after school hours. Thus, unlike most previous studies which attempted to address school-related problems such as those mentioned above, in isolation, inside school grounds, with minimal involvement of the parent, this study extends a single comprehensive treatment for several problem behaviors

into the home of the student by having a therapist from the school-based health clinic work daily with the student's parent.

The second focus of this study, fidelity of implementation by treatment agents, is also addressed in this comprehensive treatment. Treatments that are not used, or that aren't used correctly offer little chance of being effective (Gresham, 1989; Gresham, et al., 1993; Monchner & Prinz, 1991; Yeaton & Sechrest, 1981). For this reason, this study represents an improvement over those studies which do not offer a method to measure fidelity of implementation, nor therefore, provide any way for the school-based professional to detect and then boost low participation of those persons responsible for carrying out the treatment.

Another feature of this comprehensive treatment is its intensity. The strength of this treatment is enhanced because it incorporates many active treatment components for both student and parent. For the student this includes student monitoring and accountability, both at school and at home, demanded by the behavior card and the evening telephone interview; the daily school-home note with the steady flow of information to the parent regarding the child's behavior and academic performance; meetings between the therapist, student and parent; cash incentives; and daily therapist/student feedback, attention and praise. Treatment components for parents include conferences at school, weekly and daily performance feedback, face to face and telephone performance feedback, cash incentives, and the daily flow of information from school to parent regarding the progress of their daughters.

In this study, the data for the 3 cohorts of participants revealed that levels of treatment integrity for all parents decreased markedly after training day when treatment was begun. Thus, the introduction of the combination of performance feedback, a strategy derived from the organizational/management literature for enhancing integrity (Arco, 1990; Duncan & Bruwelheide, 1985; Fleming & Sulzer-Azaroff, 1989; Witt et al.,

1998) and incentives was used with 8 of the parents of the teenage mothers in this study, to increase parental usage of an intervention. This combination of contingencies on parents' behavior worked to improve parent treatment integrity. Further, increases in parent treatment integrity were associated with improvements in student academic performance, and greater student compliance with the intervention.

The declining levels of treatment integrity following training are consistent with previous research citing the difficulties with getting parental adherence to a treatment regimen for their children. Specifically, the difficulties of getting low SES and minority parents to engage in treatments for their children have been noted by many (Dumas and Wahler, 1983; Forehand et al., 1984; Forgatch et al., 1988; Loeber & Dishion, 1993; Patterson et al., 1992; Webster-Stratton, 1993).

Arco (1990) in his research with residential staff noted that declining trends in treatment integrity occurred when there were no consequences for performance. He used performance feedback to boost staff treatment integrity. For 8 of the parents in this study, the introduction of enhanced treatment, comprised of daily telephone performance feedback, weekly face to face performance feedback, and cash incentives, resulted in large increases in treatment integrity. Thus performance feedback plus incentives was demonstrated to increase adherence to the treatment protocol. This finding is consistent with those of Fleming and Sulzer-Azaroff (1989), and Harchik et al., (1992).

Contrary to what some researchers have found, that is, that teachers do not implement treatments with integrity (Mortenson & Witt, 1997; Noell & Witt, 1998; Wickstrom, 1995; Witt et al., 1998), in this study, the provision of performance feedback to teachers was unnecessary because their treatment integrity scores remained uniformly high (across all 3 cohorts, overall M=98%). Teachers, therefore, remained above the predetermined cut-off score of 75% or higher, which would have triggered the beginning of enhanced treatment. This finding is inconsistent with Wickstrom's results, who found

that the impact of consultation on teacher performance of an intervention was minimal since 33 out of 33 teachers in her study performed an intervention with integrity less than 10% of the time (Wickstrom, 1995). Perhaps the high teacher integrity scores were obtained in this study either because of the nature of the teacher's tasks. The responses required of the teacher were not complex, and were, in fact, prompted by the student who presented the behavior drill card to the teacher to be filled out at the end of the class period. The notion of prompting procedures to help maintain teacher treatment integrity at a high level may warrant additional research. Further, the number of teacher training sessions (3) and the use of behavioral techniques to thoroughly train teachers before they were asked to perform the intervention alone, may explain the high levels of teacher implementation.

For the minority student teen mothers in this study who entered the enhanced treatment phase, the combination of cash incentives for both students and parents, and performance feedback for parents, was found to produce obvious changes in student behavior. The effect of this combined treatment on student academic behavior is easily seen by comparing each student's pretreatment academic average to her academic average during treatment and enhanced treatment conditions (see Tables 5, 11, and 17). Thus, for the 8 students in this study who, along with their parents, received the enhanced treatment, one may see that these students' academic averages improved once they began receiving cash incentives, and their parents began receiving performance feedback and incentives.

The combination of performance feedback plus incentives for parents, and incentives for students, also was associated with changes in student behavior in the area of student compliance with treatment. Tables 7, 13 and 19 depict the gains made by students in treatment compliance once the enhanced treatment phase began. It would appear that the combination of cash incentives for students who were willing to work to

earn their money, as well as greater parental monitoring through improved parent treatment integrity may be responsible for the increasing trends in student treatment compliance. Because both contingencies were introduced simultaneously, the design of this study does not permit definitive determination of the separate contribution to treatment effects of each of these two components. A further contribution to the continuing increase in both student treatment compliance and academic performance, from treatment to enhanced treatment, may possibly be the result of the student beginning to contact natural reinforcement contingencies through better academic performance (i.e., doing better academically during treatment, liking the way that feels, and then wanting to continue to do well during enhanced treatment). A limitation of this investigation is that the design does not permit analysis of which of these components may be responsible for the improvement, or to what extent each may contribute to the improvement.

The monitoring of absences and treatment compliance via the behavior card, and the reporting of these scores to the parent via a school-home note and during daily and weekly performance feedback sessions helped to reduce the rate of absences for most of the students in this study, improved student school behavior, and increased student treatment compliance. For some of the students the rate of disciplinary referrals was also reduced. Regarding absences, in this study students were considered absent any time they physically were not present at school, no matter what the reason. This obviated the necessity to make a judgment call as to whether the absence was "excused" or "unexcused". Therefore, this high standard that was set for what was considered as an absence makes the attendance gains of the 9 teen mothers in the study appear to be less significant than they actually were. If "excused" absences had been considered in this study, then the improvement in attendance would have appeared significantly stronger.

Interestingly, for Lacreasha of Cohort 2, the intervention alone without the enhanced treatment was sufficient to improve her performance. Meeting initially with her

parent, monitoring the behavior card in the clinic, graphing and posting her daily results, sending the daily school-home note with a summary of her day, and receiving therapist feedback, attention and praise, brought improvement in her academic average, number of absences, disciplinary referrals and school behavior. It also resulted in high levels of treatment compliance, as may be seen from Table 11 and Figure 14.

Overall, the results of this study suggest that performance feedback to parents, combined with incentives for performance for both parents and students, can enhance parent implementation of an intervention and student performance. For the students in this study, clearly the intervention was more effective when it was implemented with high integrity; thus, the data herein add to the accumulating body of literature on performance feedback by extending the use of performance feedback to parents of African-American teen-mother students within a school setting.

One notable feature of this investigation is the measurement of treatment integrity through the collection of permanent products. Witt et al. (1998) demonstrated that treatment integrity could be measured through the collection of permanent products. Permanent products offer the distinct advantages of being far less intrusive than direct observation and much more likely to be accurate than self-report. Further, data collection through the use of permanent products offers greater precision for measurement of implementation of the independent variable because each intervention step is clearly operationalized.

Another contribution of this investigation is that it provides a useful methodology for determining where to begin to attack a problem. Because the importance of having close collaboration between school and home has been well documented as being critical for success in remediating behavior problems (Bullis & Walker, in press; Walker et al., 1995; Patterson et al., 1992), the design of this study permits the practitioner to monitor

the efforts of all participants and to know at which point there is a breakdown in intervention usage, whether with the parent, the student or with the teacher.

Knowing that the "life stressors" (Patterson et al., 1992) faced by parents of adolescents such as those in this study make it unlikely that an intervention will be implemented with integrity, a powerful feedback package comprised of both daily and weekly feedback, plus cash incentives was used. Because this study used both daily and weekly performance feedback to improve treatment implementation, it extends the work of both Witt et al. (1998) who used daily performance feedback, and Mortenson & Witt (1997) who used weekly performance feedback with teachers to increase intervention implementation. Consistent with the findings of Sulzer-Azaroff (1994), Mortenson & Witt (1997) found that reducing performance feedback from a daily to a weekly schedule produced smaller effects. Witt et al. (1998), by contrast, obtained larger effects by using daily performance feedback.

A limitation of the present investigation is that the design of this study does not permit separate analyses of the effects of the combination of daily and weekly feedback to parents, nor does it permit examination of the separate effects of incentives for parents to boost treatment integrity as compared to the effects of performance feedback for this purpose. Thus it is impossible to individually evaluate the efficacy of each of the active treatment components (i.e., daily feedback as compared to weekly feedback; telephone feedback as compared to face to face feedback; incentives as compared to the various types of feedback used). Further research is needed to evaluate these treatment components individually, in order to develop both the most efficacious and the most cost/time efficient treatment. Because of the size of the case load of most school-based professionals, and therefore the considerable time constraints, clearly, the delivery of weekly performance feedback is a more feasible option, as is the delivery of telephone feedback as compared to face to face feedback.

Similarly, another limitation of this study is that the design precludes determination of the relative effects of incentives on student performance as compared to the effects of improved parent treatment integrity on student performance. The study was however deliberately conducted in this way, as mentioned earlier, because a strong treatment was deemed necessary in order to ensure success.

Because this investigation was funded by a grant for teenage mothers, cash incentives were available for use to motivate parents and students. A further limitation of this study is that such funding may not be available to many school-based professionals.

A final limitation of this investigation is that the effects of the combined treatment components for students (i.e., monitoring, therapist/student interaction, behavior card, graphing and posting of individual student results, school-home note, and cash incentives) are impossible to separate and evaluate individually. Future research should endeavor to identify the relative contribution of each of the individual treatment components mentioned in the foregoing paragraphs, to improved student behavior, in order to design the most efficacious intervention of the appropriate treatment strength.

In conclusion, the limitations mentioned above will need to be addressed through additional research in order to further refine our intervention technology and enhance our ability to provide the most effective and efficient treatments possible to the students and parents whom we serve. The present results attained with the teenage mothers, their parents and their teachers who participated in this study, while promising, will need to be investigated further through future research efforts.

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APPENDIX A

LETTER TO TEACHERS FROM THERAPIST

Dear Teachers:

We have been funded by Children's Trust Fund to work to improve the school attendance and educational success of Istrouma High's teenage mothers during the coming semester. Our project will target getting the student to school (reducing absences), improving her behavior and providing support to facilitate her academic success. We also work intensively with the parent/guardian. Last year we were able to improve student attendance, grades and behavior by using a similar strategy with other at-risk students. We plan to be successful again this year too!

On the next page you will find a questionnaire regarding your student. Please complete it and place in the Health Clinic mailbox by _____, so that we may see if she qualifies for our program.

We look forward to working with you and helping to make your job a bit easier!

Sincere thanks,

Cherri Penton
Health Clinic

APPENDIX B

TEACHER QUESTIONNAIRE

SMART Program **Teacher Questionnaire**

Teacher's Name: _____ Student's Name: _____
Room Number: _____ Planning Period: _____

Yes	*No*	
___	_x_	Is student performing up to your expectations?
		What has led you to feel that she can do better?_____
		_____
___	_x_	Is the student in Special Education?
___	_x_	Is the student taking medication? (Verify with nurse's record.)
_x_	___	Is the student's academic performance erratic?
		Please list below the last 5 grades you have recorded for this student.
		1 ____ 2 ____ 3____ 4____ 5____
		How many times has the student been absent? (_____)
		Of this number, how many times has the student "cut" class? (_____)
		How many times tardy? (_____)
_x_	___	Do you typically assign daily homework?
_x_	___	Do you typically assign daily classwork?
___	_x_	Does the student have a history of being assaultive?
		Have you sent the student to the office for disciplinary reasons?
		If yes, what exactly does the student do, and how often does this
		occur?_____

APPENDIX C

ON-TASK RECORDING FORM

Pretreatment Classroom Observation Form				
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75

Score: _____ _____ _____ _____ _____

Percent Score: _____ _____ _____ _____ _____

Average Percent Score: _____

Date: _____ Time started: _____ Time finished: _____

Observer: _____ Activity: _____

APPENDIX D

BEHAVIOR DRILL CARD

S.M.A.R.T Program			
Name: _____ ***Date:*** _____			
On Time:	Yes	No	
Present entire class period?	Yes	No	Teacher Sign:
On time:	Yes	No	
Present entire class period?	Yes	No	Teacher Sign:
TARGET CLASS (✓, x, or n/a)			
On Time __			**Behavior Score**
Brought Materials __			Treated peers with respect ____
Turned in Homework __ Classwork __			Spoke respectfully to teacher ____
Quick Score Grade __			Spoke only with permission ____
Came to Clinic __			**Homework Assignment:**
Teacher Signature:			
On Time:	Yes	No	
Present entire class period?	Yes	No	Teacher Sign:
On Time:	Yes	No	
Present entire class period?	Yes	No	Teacher Sign:

APPENDIX E

DATA COLLECTION FORM OF PARENT TREATMENT STEPS

SMART PROGRAM — Treatment Integrity Checklist Form for Parents

Case #: _____

Date	Date	Date	Date	Date	
____	____	____	____	____	
____	____	____	____	____	1) Parent Called the Answering Machine
____	____	____	____	____	2) The Student Was on the Phone
____	____	____	____	____	3) Conduct The Interview Leaving Message on Machine
____	____	____	____	____	4) Appropriately Provided Reward
					(For feedback purposes, note which apply)
____	____	____	____	____	*a) Did You go to Class on Time?*
____	____	____	____	____	*b) Did You Bring Your Materials to Class?*
____	____	____	____	____	*c) Did You Turn in Your Assignment / Place in Folder?*
____	____	____	____	____	*d) What Was Your Academic Grade?*
____	____	____	____	____	*e) What Was Your Behavior Grade?*
____	____	____	____	____	*f) I provided a home reward of* _____
____	____	____	____	____	*g) I did not provide a reward.*
____	____	____	____	____	**% of Treatment Steps Completed** (exclude italicized)
____	____	____	____	____	Substitute
____	____	____	____	____	No School
____	____	____	____	____	Student Absent
____	____	____	____	____	Student in TOR

✓ = **Treatment step was completed**

✗ = **No evidence that the treatment step was completed**

N/A = Treatment step was not applicable due to extraneous variables

APPENDIX F

DATA COLLECTION FORM OF TEACHER TREATMENT STEPS

SMART PROGRAM — **Treatment Integrity Checklist Form for Teachers**

Indicate whether or not the teacher performed the following treatment steps:

Date	Date	Date	Date	Date	
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	1) Provided a Daily Assignment
_____	_____	_____	_____	_____	2) Quick Score the Assignment Daily
_____	_____	_____	_____	_____	3) Maintained Student Work Folder
_____	_____	_____	_____	_____	4) Marked Entire Card
					(For feedback purposes, note which were checked)
_____	_____	_____	_____	_____	*a) if Student arrived to Class on Time*
_____	_____	_____	_____	_____	*b) if Student Brought Materials to Class*
_____	_____	_____	_____	_____	*c) if Student Turned in Assignments*
_____	_____	_____	_____	_____	**% of Treatment Steps Completed** (excluding 4a, 4b, 4c)
_____	_____	_____	_____	_____	Substitute
_____	_____	_____	_____	_____	No School
_____	_____	_____	_____	_____	Student Absent
_____	_____	_____	_____	_____	Student in TOR

✓ = **Treatment step was completed**

✗ = **No evidence that the treatment step was completed**

N/A = **Treatment step was not applicable due to extraneous variables**

APPENDIX G

DATA COLLECTION FORM OF STUDENT TREATMENT STEPS

SMART PROGRAM — STUDENT TREATMENT STEPS

Case #

date	date	date	date	date	
____	____	____	____	____	
____	____	____	____	____	1) Arrived to Class on Time
____	____	____	____	____	2) Arrived to Class Prepared (pen, books paper)
____	____	____	____	____	3) Turned in Homework or Classwork
☐	☐	☐	☐	☐	*Assignment Score on Homework*
____	____	____	____	____	4) Brought Signed Card to Clinic
____	____	____	____	____	5) Made a 2 or better on class assignment
____	____	____	____	____	6) Made a 2 or Better For Behavior
____	____	____	____	____	% of Treatment Steps Completed
____	____	____	____	____	no school
____	____	____	____	____	student absent
____	____	____	____	____	student in TOR

✓ = Treatment step was completed

✗ = No evidence that the treatment step was completed

N/A = Treatment step was not applicable due to extraneous variables

APPENDIX H

ACADEMIC QUICK-SCORE GRADING CRITERIA

3

- Generally Acceptable
- Work as Complete as Possible Given the Time Available
- Majority of Items Spot-Checked Were Correct

2

- Work "OK"
- Work as Complete As Possible Given the Time Available
- A Passing Grade of 70% or More

1

- Insufficient Progress
- Some Work Done in the Allotted Time
- A Grade of Less Than 70%

0

- Not Acceptable
- Little Work Completed in the Time Allotted
- Most Items Wrong
- OR, NO PAPER TURNED IN

APPENDIX I

STUDENT CHECKLIST OF INTERVENTION STEPS

SMART Program **Student Checklist of Intervention Steps**

Dear _____:

We have prepared this handy checklist for you to refer to each day in performing the steps you need to do to help you do better in Mr./Mrs._____'s class. Please look at the list each day BEFORE you attend this class so that you can remember to do *everything* on the list and earn your rewards!

- I will be on time to class. (1 point)
- I will carry my materials to class (pencil, paper, textbook). (1 point)
- I will turn in my homework and classwork each day. (1point)
- I will check into the clinic at _____ o'clock with my signed card. (1 point)
- I will strive to make a daily academic grade of "2" or better. (1 point)
- I will strive to make a daily behavior grade of "2" or better. (1 point)
- I will graph my academic and behavior results in the clinic.
- I will participate in the telephone interview with my parent daily.

APPENDIX J

TEACHER CHECKLIST OF INTERVENTION STEPS

SMART Program **Teacher Checklist of Intervention Steps**

Dear Mr./Mrs._____,

We have provided this handy checklist for your convenience in performing the treatment steps listed below. Please use it to refer to in order to double check that you have completed all steps for your student, _____, each day. It is really important to do each of the following steps *daily*!

- Provide a daily assignment for the student.
- Quick-score the assignment just before you mark the student's card.
- Maintain the assignment in the folder you were given for storing it.
- Mark the student's card (*after* student has copied homework assignment in the space provided):

  _____ If student was on time to class.

  _____ If student brought materials (pencil, paper, textbook).

  _____ If student turned in an assignment (either homework or classwork).

  _____ Assign the academic grade according to the Quick Score criteria.

  _____ Check appropriate behaviors observed in class.

  _____ Sign the card and return it to the student.

APPENDIX K

BEHAVIOR SCORE CRITERIA

On the student's behavior drill card, check only the behaviors that you actually observe during the class period each day.

Spoke Only With Permission

Spoke Respectfully to the Teacher

Treated Peers With Respect

APPENDIX L

PARENT CHECKLIST OF INTERVENTION STEPS

SMART Program **Parent Checklist of Intervention Steps**

Dear Mr./Mrs. _____:

We have prepared this handy checklist for you to refer to each night as you prepare to make your daily call to our telephone answering machine. Please use the list to double check that you have completed all the steps that we have designed to help your child _____ do better in her _____ class. *It is really important that you do these steps every day!*

- Dial the answering machine (phone # -).
- Have your child on the phone.
- Conduct the interview leaving the message on our answering machine. Ask:

  ____Were you on time to class?

  ____Did you bring your materials?

  ____Did you turn in your assignments and place them in the folder?

  ____What was your academic grade?

  ____What was your behavior grade?

  ____ State: "I provided (or I didn't provide) a reward of _____ ."
  (name the item)

- REMEMBER: Provide home reward *only if this space is checked on the "NOTE HOME" which you receive daily.*

APPENDIX M

PARENT NOTE CONTAINING THERAPIST'S PHONE NUMBERS

Dear Parents,

Below is the phone number where you may reach me at the health clinic:

355-6084

Or, you may call me at:

755-6138

APPENDIX N

TREATMENT STEP RATIONALE-BENEFIT CHART FOR PARENTS

PARENT TREATMENT STEPS		
TREATMENT STEPS	**PERMANENT PRODUCTS**	**PARENT STUDENT BENEFITS**
1. Make daily phone call	Recording in SMART office	Parent accountability - competes home treatment
2. Child on the phone	Recording in SMART office	Student accountability
3. Conduct phone interview	Recording in SMART office	Increased monitoring and parent-child communication
4. Appropriately provide reward	None (child verbal report)	Reinforces appropriate behavior

APPENDIX O

TREATMENT STEP RATIONALE-BENEFIT CHART FOR STUDENTS

STUDENT TREATMENT STEPS		
TREATMENT STEPS	**PERMANENT PRODUCTS**	**STUDENT BENEFITS**
1. Be on time to class	Teacher marked on card	Increased instructional time, compliance with school rules
2. Brought materials	Teacher marked on card	Prepared for class
3. Turned in classwork/ homework	Papers in folder	Provides daily practice, increased opportunity to respond
4. Check into clinic with signed card	Therapist records presence in clinic	Compliance with treatment program
5. Strive to earn a behavior grade of "2" or better	Teacher marked on daily card	Improved behavior increases academic engaged time
6. Strive to make academic grade of "2" or better	Teacher provided grade on card	Increased performance in target class

APPENDIX P

TREATMENT STEP RATIONALE-BENEFIT CHART FOR TEACHERS

TEACHER TREATMENT STEPS		
TREATMENT STEPS	**PERMANENT PRODUCTS**	**TEACHER/ STUDENT BENEFITS**
1. Provides daily assignment	Paper in folder	Gives student practice of the skill taught
2. Quick score the assignment	Grade on paper	Provision of immediate feedback
3. Maintain daily folder	Papers in folder	Record of student performance
4. Marks student's card	Daily student card	Monitor student performance

APPENDIX Q

THERAPIST/STUDENT FEEDBACK

SMART Program **Therapist/Student Feedback**

Check Behaviors Observed:

Date:	Date:	Date:	Date:	Date:	
____	____	____	____	____	
____	____	____	____	____	Reminded student of intervention goals.
____	____	____	____	____	Praised correctly executed steps.
____	____	____	____	____	Reviewed omitted or incorrect steps.
____	____	____	____	____	Answered questions about treatment.
____	____	____	____	____	Solicited commitment to do steps correctly in future.
____	____	____	____	____	Reminded student to check into clinic next day.
____	____	____	____	____	Reminded of rewards for compliance with treatment.
____	____	____	____	____	Had student graph performance.

APPENDIX R

THERAPIST/STUDENT SCRIPT

SMART Program **Therapist/Student Script**

T: Hi, Lucy! I'm glad to see you today. How's it going?
Let's take a look at your card and see if you've met your goals today of improving your class attendance, grades and behavior.

S: (Shows card).

T: Oh! Great! You've received 1 point each for..... (praise each correctly executed step). That's five points total. Good job! It looks like you need to work a little harder, though, on..... (review omitted or incorrect steps). I want you to try to do that step correctly tomorrow. Will you? Do you have any questions? Remember, Lucy, you earn rewards each day that you meet the goals of the program (i.e., home reward during treatment; cash rewards during enhanced treatment).

S: Yeah, I guess I can do it correctly tomorrow.

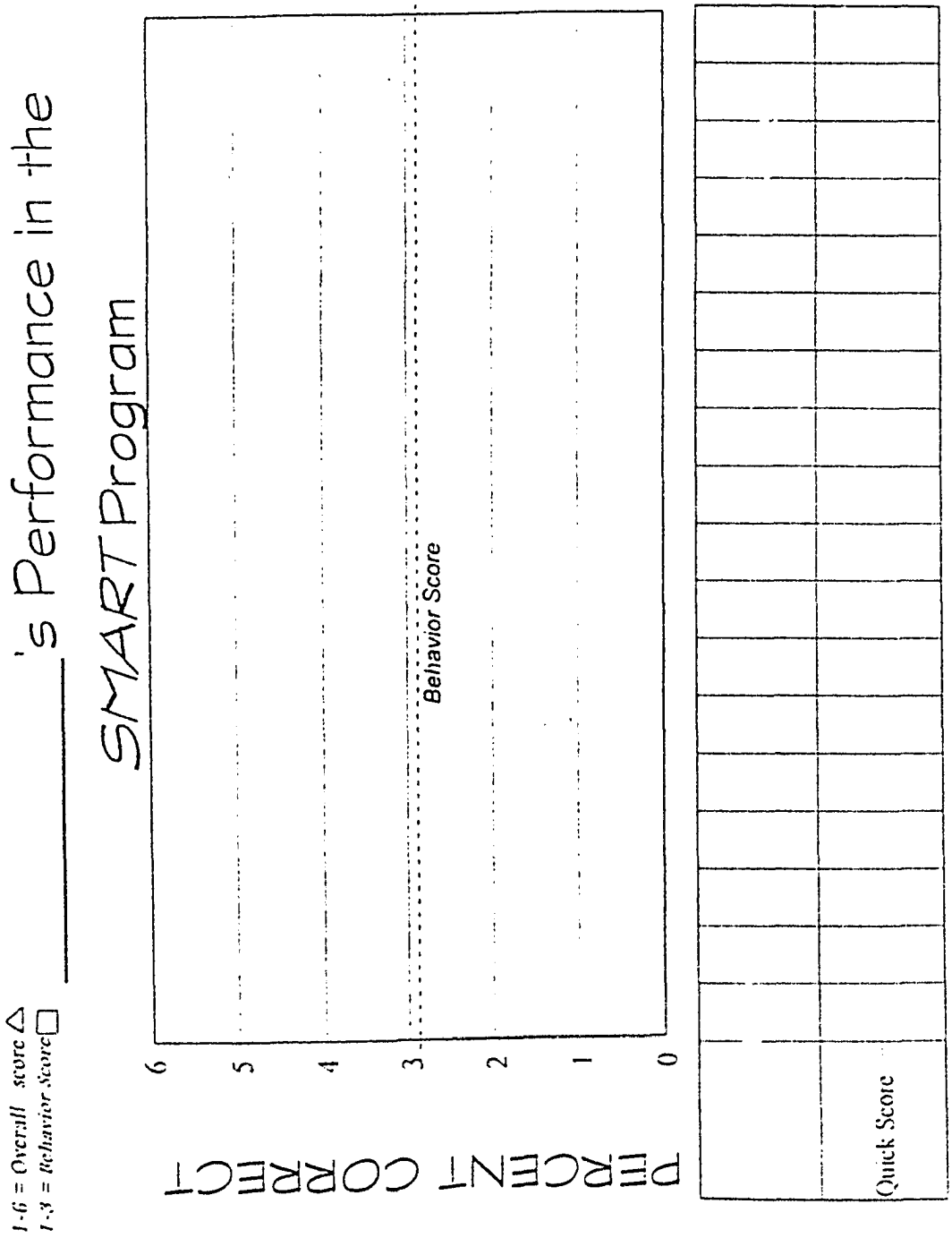
T: Now, let's graph your academic and behavior results and see how that is improving.

S: Oh look, it *is* improving!

T: Yes, that's really great! I'm proud of your good results and you should be too. Here's your note home to Mom saying that you have earned your home reward. I'll look forward to seeing you again tomorrow. Please remember to come to the clinic at _____o'clock. And, keep up the good work!

APPENDIX S

STUDENT GRAPH



APPENDIX T

NOTE HOME FORM

SMART PROGRAM **Note Home Form**

DATE: _____

Your child earned an academic grade of _____ today.

The score earned on the daily card was _____ today.

Provide reward: Yes_____ No_____

SIGNATURE: _____

APPENDIX U

LETTER FROM PRINCIPAL TO PARENTS

ISTROUMA HIGH SCHOOL AND TECHNOLOGY MAGNET

ADMINISTRATION
Elisha Jackson-Principal
John McCann-API
Darrell McClung-APA

3730 Winbourne Avenue
Baton Rouge, LA 70805-5999
Telephone: 355-7701

January 16, 1998

Dear Parents:

This letter is to inform you of a new program funded by Children's Trust Fund of Louisiana to assist and encourage teenage-mothers to be successful in school, and earn money while doing it! We are excited to be able to assist your family in this special way. I am sure that your goal is to see your daughter graduate from High School, get a job, and be able to support herself and her child. Our goals for her are the same.

Statistics show that the risk of dropping out of school has increased for teenage-mothers. Very few of them finish school. In today's difficult job market it is impossible to get a job without a high school diploma. Further, new legislation may remove Federal support from teenage-mothers who don't attend school regularly.

Istrouma High School and Children's Trust Fund have formed a partnership dedicated to helping your daughter achieve three goals. We want her to (1) receive her diploma, (2) be able to get a job, and (3) be able to continue to receive Federal funding in the meantime. Come let us share with you your role in assisting your daughter to fulfill these goals. It can't be done without you! The key to fulfilling these goals lies in you forming a partnership with us, so that we can work together to ensure your daughter's success.

There will be a meeting at_____ o'clock AM on _____in the Istrouma High School Library annex (on left, just after you enter the library). Come find out how you can help your daughter qualify for Children's Trust Fund aid and attain these three important goals. You must be present for your daughter to participate (or telephone me at 755-6138 after 5:00 PM before _____ to arrange a different appointment). See you then!

Sincerely,

Cherri Penton

Cherri Penton
Director, Children's Trust Fund Project

Elisha Jackson

Elisha Jackson
Principal, Istrouma High School

APPENDIX V

BEHAVIORAL CONTRACT

SMART Program **Behavioral Contract**

DATE:_____

STUDENT STEPS:

Be on time to class
Bring my signed card to the clinic
Make academic grade of 2 or more
Carry my materials to class
Make behavior grade of 2 or more
Turn in my daily assignments

I promise to do these things daily so I can do better in school.

_____ _____
Student Therapist

PARENT STEPS:

Dial the answering machine at _____
Have my child on phone
Conduct the interview
State whether I provided reward
Provide the home reward if my child earned 5 or more points

I agree to telephone the therapist before 10 o'clock each evening and conduct the interview while my child responds, so that it will be recorded on the answering machine.

_____ _____
Parent Therapist

TEACHER STEPS:

Provide a daily assignment for the student
Quick-score assignment before end of class
Maintain student's assignment in folder
Mark the student's card accurately

I agree to perform the steps above daily to help my student do better in my class.

_____ _____
Teacher Therapist

APPENDIX W

REVISED BEHAVIORAL CONTRACT

SMART Program **Behavioral Contract**

DATE:_____

STUDENT STEPS:

Be on time to class
Bring my signed card to the clinic
Make academic grade of 2 or more
Carry my materials to class
Make behavior grade of 2 or more
Turn in my daily assignments

I earn $3 each day I score 6 on my card. I earn $15 weekly bonus if present in all class periods of the week, score 6 four days out of 5, and make phone call with parent all 5 nights. I promise to do these things daily so I can do better in school and earn my rewards.

_____ _____
Student Therapist

PARENT STEPS:

Dial the answering machine at _____
Conduct the interview
Provide the home reward if my child earned 5 or more points
Have my child on phone
State whether I provided reward

I agree to telephone the therapist before 10 o'clock each evening and conduct the interview while my child responds, so that it will be recorded on the answering machine. I earn $2 each time I do so. I earn $10 weekly bonus if I do this all 5 nights of the week. I must come to school for my weekly conference to collect my cash.

_____ _____
Parent Therapist

TEACHER STEPS:

Provide a daily assignment for the student
Maintain student's assignment in folder
Quick-score assignment before end of class
Mark the student's card accurately

I agree to perform the steps above daily to help my student do better in my class.

_____ _____
Teacher Therapist

APPENDIX X

THERAPIST/PARENT FACE-TO-FACE PERFORMANCE FEEDBACK

SMART Program **Therapist/Parent Face-to-Face Performance Feedback**

Check Behaviors Observed:

Date:	Date:	Date:	Date:	Date:	
____	____	____	____	____	
____	____	____	____	____	Provided graph plotting student and parent progress.
____	____	____	____	____	Reviewed intervention goals and student progress.
____	____	____	____	____	Reviewed parent progress; gave positive feedback.
____	____	____	____	____	Rationale provided for missed steps.
____	____	____	____	____	Solicited commitment to do steps correctly in future.
____	____	____	____	____	Answered questions or comments.
____	____	____	____	____	Reminded of daily and weekly rewards.
____	____	____	____	____	Made appointment for next feedback meeting.

Initial performance feedback meeting:

_____ Explained reason for meetings.

APPENDIX Y

THERAPIST/PARENT TELEPHONE PERFORMANCE FEEDBACK

SMART Program **Therapist/Parent Telephone Performance Feedback**

Check Behaviors That Occurred:

Date:	Date:	Date:	Date:	Date:	
____	____	____	____	____	
____	____	____	____	____	Presented verbal data on intervention usage.
____	____	____	____	____	Praised correctly executed steps.
____	____	____	____	____	Gave corrective feedback for omitted/wrong steps.
____	____	____	____	____	Solicited commitment to do steps correctly in future.
____	____	____	____	____	Answered questions or comments.
____	____	____	____	____	Reminded of next face-to-face feedback meeting.

APPENDIX Z

THERAPIST/TEACHER PERFORMANCE FEEDBACK

SMART Program **Therapist/Teacher Performance Feedback**

Check Behaviors Observed:

Date:	Date:	Date:	Date:	Date:	
____	____	____	____	____	
____	____	____	____	____	Provided graph plotting student and teacher progress.
____	____	____	____	____	Reviewed intervention goals.
____	____	____	____	____	Reviewed teacher progress; gave positive feedback.
____	____	____	____	____	Rationale provided for missed steps.
____	____	____	____	____	Solicited commitment to do steps correctly in future.
____	____	____	____	____	Answered questions or comments.
____	____	____	____	____	Scheduled next feedback meeting.

Initial performance feedback meeting:

_____ Explained reason for meetings.

VITA

Cherri Penton is a graduate of the Department of Psychology at Louisiana State University, where she received her doctoral degree. She has worked for the past four years in a school-based medical clinic, funded by Louisiana State University School of Medicine, Division of Family Practice, where she does the mental health work for a large urban school population of minority children. Her research interests include developing academic and behavioral interventions to impact the school-related problems of these adolescents. Additionally, she works with the parents and families of these students within an integrated family systems approach to treatment. Cherri also works with The Children's Trust Fund of Louisiana and has for the past four years administered the grants she has written which have been funded by this organization. Her most recent research efforts, also funded by Children's Trust Fund, are interventions she has developed to address the academic, behavioral, and parenting/childrearing deficits of teenage mothers.

Cherri delights in spending time with her family and enjoys traveling abroad with her husband and son for yearly ski trips to the Austrian Alps. She is an avid swimmer, antique collector, and musician, and she loves playing the piano and the French horn in her spare time.

A native of Florida, reared on Amelia Island, she received her undergraduate degree in music from Jacksonville University. A resident of Holland, Belgium, and the United States, she now calls Louisiana her home.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Cherri Edenfield Penton

Major Field: Psychology

Title of Dissertation: Intervention Implementation and Intervention Outcomes for Teenage Mothers in School-Based Treatment for Social and Academic Problems

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

May 4, 1999